Fortress 9100
User's Guide

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AOpen Fortress 9100

User's Guide

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Important Safety Instructions

1. Read these instructions carefully. Save these instructions for future reference.
2. Follow all warnings and instructions marked on the product.
3. Do not use this product near water.
4. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
5. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never block by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
6. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
7. This product is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
8. Do not allow anything to rest on the power cord. Do not locate this product where persons will

walk on the cord.

9. If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed 15 amperes.
10. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
11. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.
12. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    a. When the power cord or plug is damaged or frayed
    b. If liquid has been spilled into the product
    c. If the product has been exposed to rain or water
    d. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require

extensive work by a qualified technician to restore the product to normal condition.

e. If the product has been dropped or the cabinet has been damaged

f. If the product exhibits a distinct change in performance, indicating a need for service

13. Replace the battery with the same type as the product's battery we recommend. Use of another battery may present a risk of fire or explosion. Refer battery replacement to a qualified serviceman.

14. Warning! The battery could explode if not handled properly. Do not recharge, disassemble or dispose of it in fire. Keep it away from children and dispose of my used battery promptly.

Use only the proper type of power supply cord set (provided in your keyboard/manual accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SVT/SJT, rated 6A 125V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

CD-ROM Safety Warning

DANGER
INVISIBLE RADIATION WHEN OPEN.
AVOID EXPOSURE TO BEAM.

CLASS 1 LASER PRODUCT
APPAREIL A LASER DE CLASSE 1
LASER KLASSE 1
LOUKAN 1 LASERLAITE
PRODUIT LASER
CATEGORIE 1

Caution on Lithium Batteries

CAUTION:

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

FCC Class B Radio Frequency Interference Statement

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.

2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/television technician for help.

Notice 1:

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2:

Shielded interface cables, if any, must be used in order to comply with the emission limits.

About this Manual

Purpose

This user's guide aims to give you the information you need to operate the system properly and tells you how to install internal components.

Manual Structure

This user's guide consists of four chapters.

Chapter 1 Fortress 9100 Housing (SV100)

This chapter describes the housing and all its major components. It contains instructions for upgrade options and installation procedures.

Chapter 2 Fortress 9100 Motherboard (DX3R Plus)

This chapter describes the motherboard and all its major components. It contains the motherboard layout, jumper settings, cache and memory configurations, and information on other internal devices.

Chapter 3 BIOS Setup Utility

This chapter gives information about the system BIOS and tells how to configure the system by changing the settings of the BIOS parameters.

Chapter 4 SCSI Select Configuration Utility

This chapter gives information about the SCSI Select utility and tells how to configure the SCSI configuration by changed the settings of the SCSI parameters.

Conventions

The following conventions are used in this manual:

Text entered by user	Represents text input by the user.
ALT, ENTER, F8, etc….	Represent the actual keys that you have to press on the keyboard.
	**NOTE** Gives bits and pieces of additional information related to the current topic.
	**CAUTION** Gives precautionary measures to avoid possible hardware or software problems.
	**IMPORTANT** Reminds you to take specific actions relevant to the accomplishment of procedures.

What's in this manual

Chapter 1 Housing Instruction (SV100)

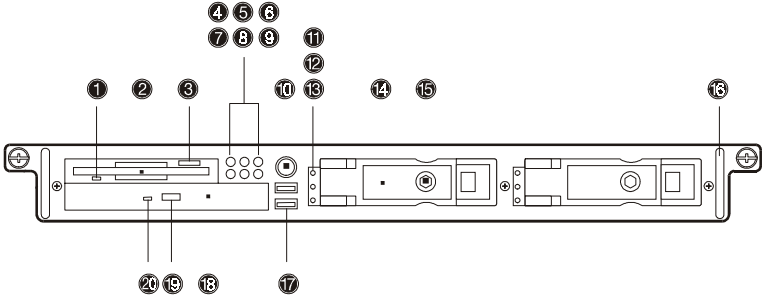
1.1 Introduction

This installation guide describes the features of the SV100 housing and tells you how to install the basic system components such as disk drives, a motherboard, or expansion boards.

1.2 Features

1.2.1 Front Panel

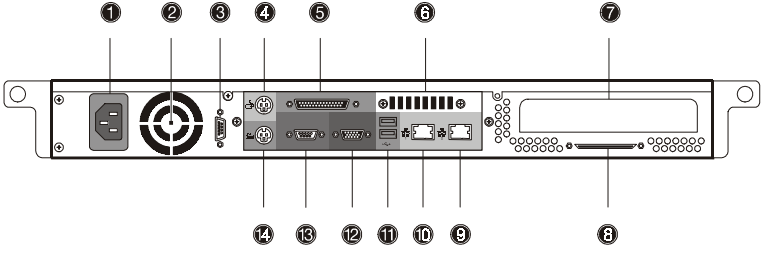
Additional duplicate keys can be found at the back of the system.



No.	Icon	Item
1		Slim type FDD LED
2		Slim type FDD
3		Slim type floppy disk eject button
4		Event LED
5		HDD access LED
6		Power LED
7		LAN2 access LED
8		LAN1 access LED
9		Reserved
10		Power switch
11		HDD power LED
12		HDD activity LED

13		HDD error LED
14		Drive trays
15		Drive tray lock
16		Metal handle
17		USB ports (2 ports)
18		Slim type CD-ROM drive emergency eject hole
19		Slim type CD-ROM drive eject button
20		Slim type CD-ROM drive LED

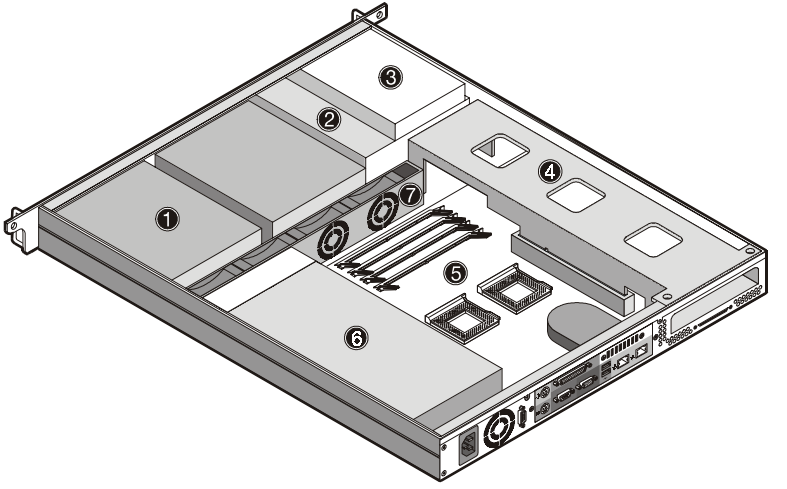
1.2.2 Real Panel



No.	Item
1	Power supply
2	Power supply fan
3	Serial port 2
4	PS/2 mouse port
5	*Parallel Port (Optional)
6	Ventilation
7	Add-on card bracket
8	Very high density SCSI connector
9	LAN 2 RJ-45 port
10	LAN 1 RJ-45 port
11	USB ports
12	VGA port
13	Serial port 1
14	PS/2 keyboard port

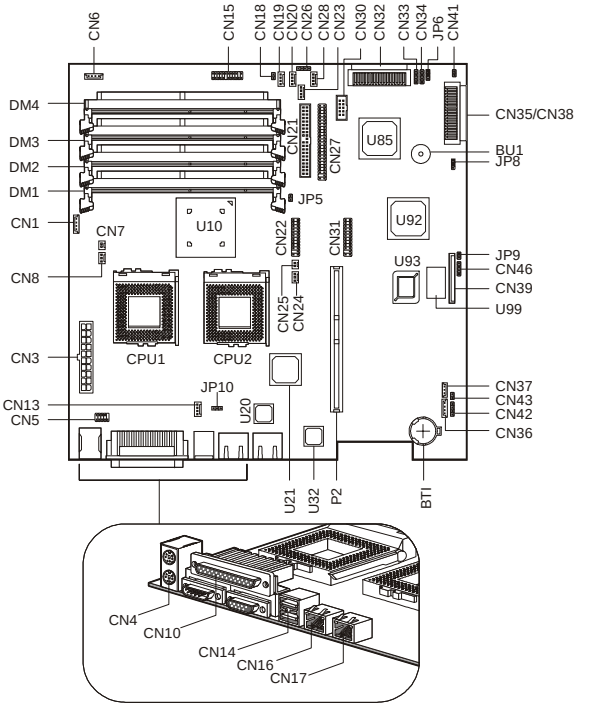
* If you system without a parallel port, it will be changed to a ventilation of fan.

1.2.3 Internal Component



No.	Item
1	Hot-swap SCSI HDD trays
2	Slim type CD-ROM drive
3	Slim type FDD
4	Metal bracket/Expansion card slot
5	DX3R-1U Motherboard
6	Power supply
7	Housing fan

1.2.4 Motherboard Layout



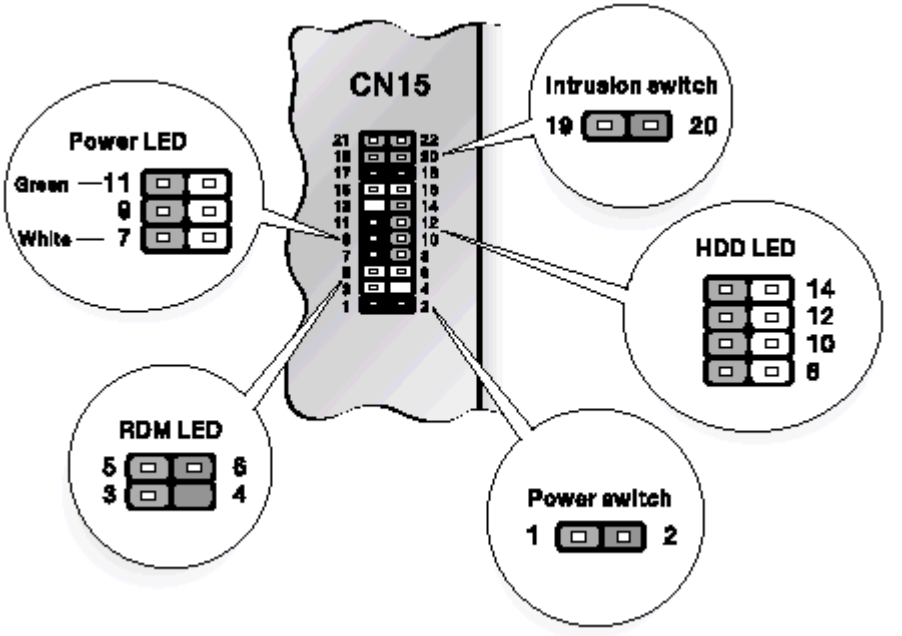
Item	Description
BT1	Battery
BU1	Buzzer
CN1/CN6/CN36	IPMI connector
CN2	ITP port
CN3	ATX power supply connector
CN4	Upper: PS/2 mouse connector Lower: PS/2 keyboard connector
CN5	Serial port connector
CN7	CPU1 thermal connector
CN8	CPU1 fan connector
CN10	Upper: Parallel port Lower left: Serial port 1 Lower right: VGA port

CN13	Housing fan connector
CN14	UBS1 and USB2 connector
CN15	LED/Switchboard connector
CN16	LAN1 RJ45 jack
CN17	LAN2 RJ45 jack
CN18	NMI switch
CN21	Primary IDE connector
CN22/CN31	BMC DB connector
CN25	CPU2 thermal connector
CN26	LAN1/LAN2 status report connector
CN27	Slim type CD-ROM connector
CN30	USB connector
CN32	Wide SCSI channel B connector
CN33/CN34	External HDD LED connector

CN35/CN38	Wide SCSI channel A connector
CN37	WOL connector
CN39	Slim type FDD connector
CN42	I^2C connector
CN43	IOCHRDY (For debugging)
CN45	BPL1 fail LED
CPU1	1st CPU socket
CPU2	2nd CPU socket
DM1 to DM4	DIMM slots
JP4	Power LED & Reset switch connector
JP5	Event clear connector
JP6	SCSI terminator 1-2: Disabled 2-3: On

JP8	Password setting 1-2: Check password 2-3: Bypass password
JP9	Speaker connector
P2	64-bit/66MHz PCI slot
U10	Server Works LE north bridge chipset
U20	Intel 82559 LAN1 controller
U21	ATI Rage XL video chipset
U32	Intel 82559 LAN2 controller
U66	Adaptec AIC-7899 chipset
U92	Server Works LE south bridge chipset
U93	BIOS chipset
U99	SMC 47B277 super I/O chipset

1.2.5 LED/Switchboard Connector (CN15)



1.3 Opening the Housing Panels

Always observe the following ESD (Electrostatic Discharge) precautions before installing any system component:

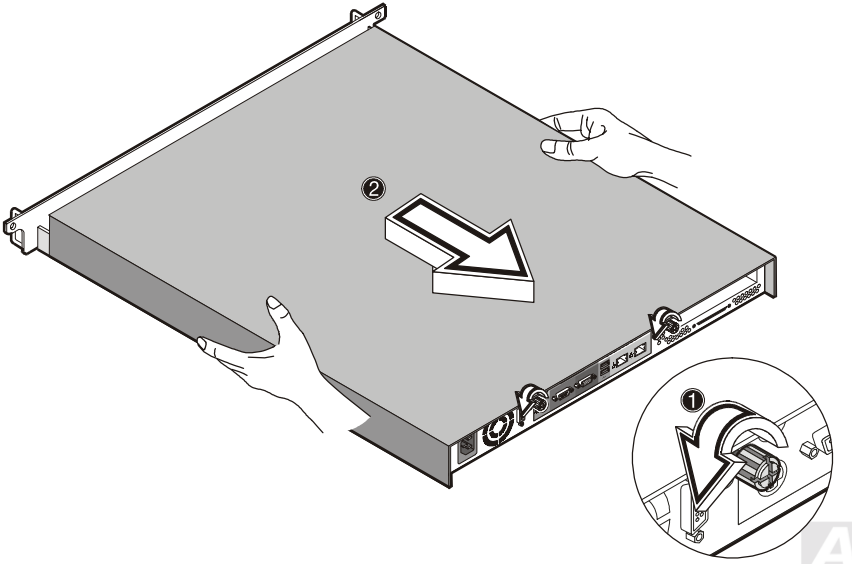
1. Do not remove any system component from its packaging unless you are ready to install it.
2. Wear an antistatic strap before handling electronic component. Antistatic straps are available at most electronic component stores.

DO NOT attempt the procedures in the following sections unless you are confident of your capability to perform them. Otherwise, ask a service technician for assistance.

1.3.1 Opening the housing panel

A micro switch is allocated on the housing panel. It helps indicate whether the panel is removed or intact. To open front door:

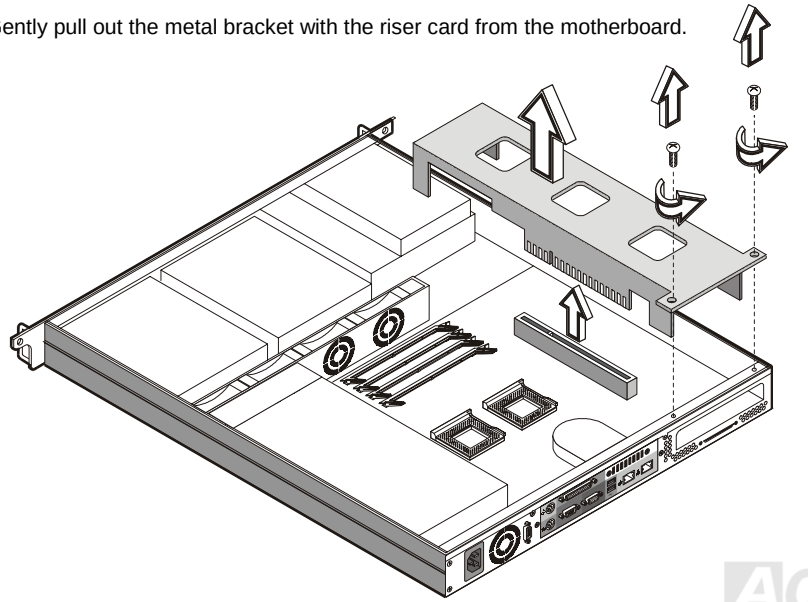
1. Turn off the power to the system unit and unplug all cables.
2. Unlock two thumbscrews using your fingers.
3. Gently pull back the housing panel and detach.



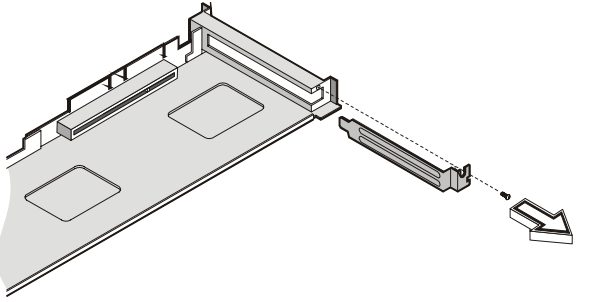
1.3.2 Installing an expansion board

To install an expansion board:

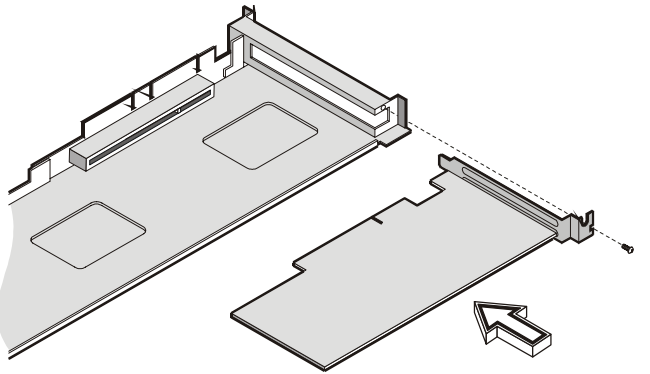
1. Open the housing panel. See “Opening the housing panel” on page 39 for more information.
2. Remove the metal bracket from the housing by removing two screws. Save the screws for later use.
3. Gently pull out the metal bracket with the riser card from the motherboard.



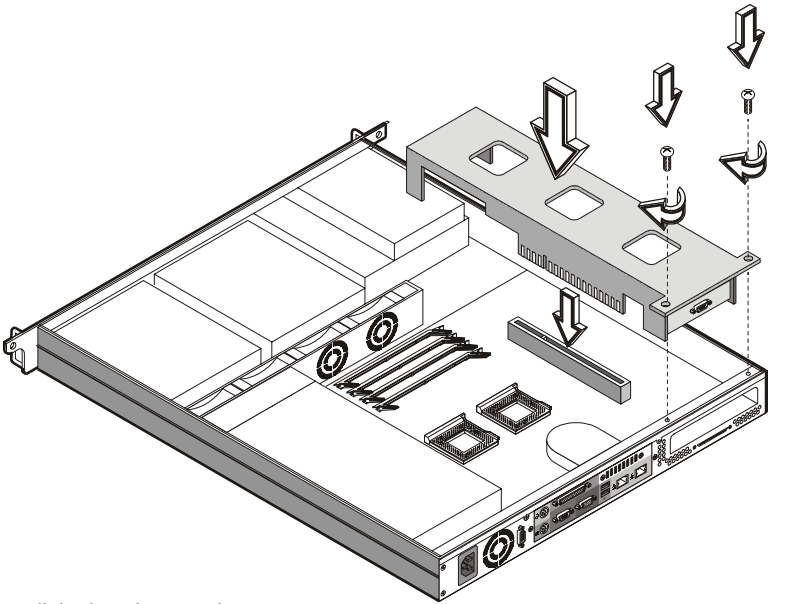
4. Remove the expansion slot bracket. Save the screw for later use.



5. Insert the expansion card into the riser card.
6. Secure the expansion board to the metal bracket with a screw.



7. Reinstall the metal bracket with the riser card into the motherboard and secure it with two screws.



8. Reinstall the housing panel.

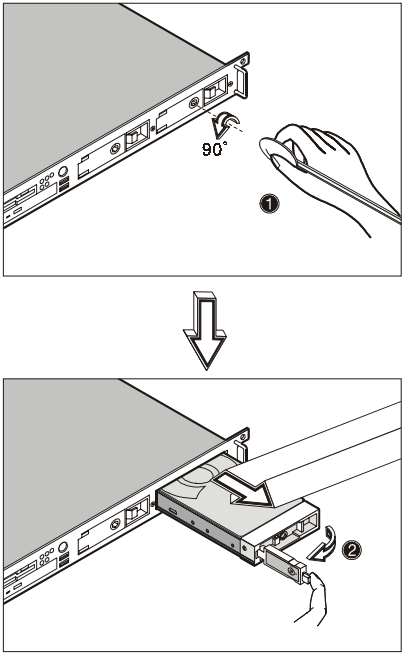
1.4 Hot-swapping SCSI SCA HDD

You can hot-swap (remove or replace) a HDD any time when it fails to operate (indicated by the yellow LED).

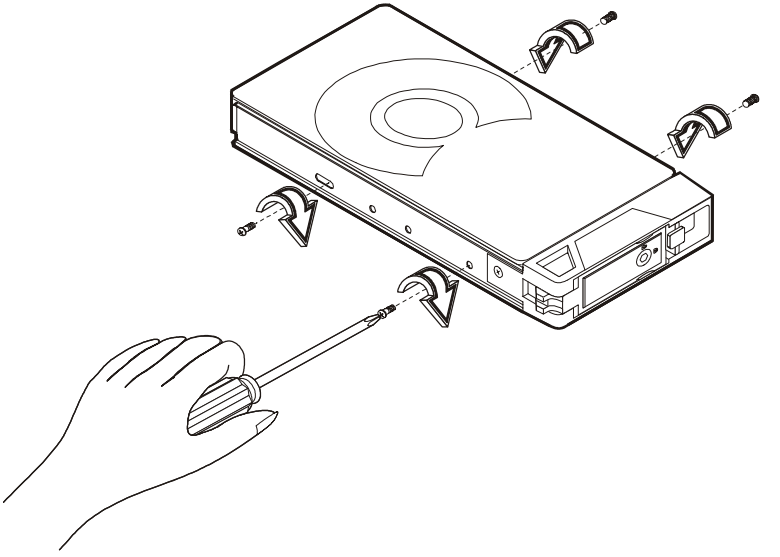
Do not remove a HDD when active. This may cause undue damage to the HDD.

Follow these steps to install a hot-swappable SCSI drive:

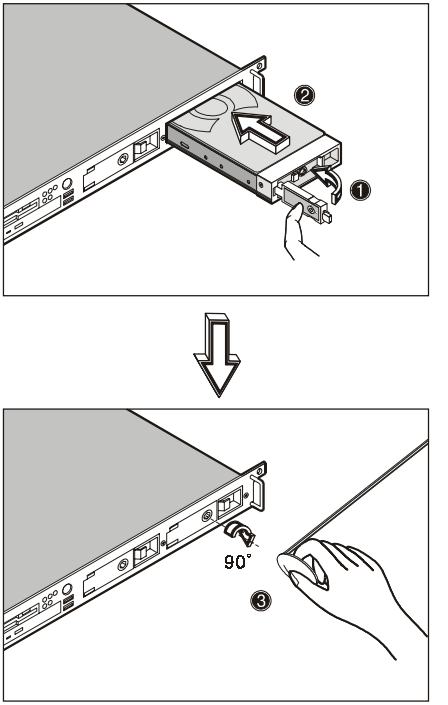
1. Unlock the drive tray with a hex key.
2. Use your finger to release the drive tray and then pull it out.



3. Place a hard disk on the tray. Secure it with four screws as shown below.



4. Insert the tray into the hot-swap cage with the lever still extended. Make sure that the drive is properly inserted before closing the lever.



5. Push the lever back until it close into place.

1.5 Installing & Removing the CPU

The Pentium III comes in a FC-PGA (Flip-Chip Pin Grid Array) 370-pin package. The FC-PGA package is designed for the new breed of sleek, high performance, small form factor PCs.

Always observe the ESD precautions when installing or removing a system component. Refer to the section above.

1.5.1 Installing a CPU

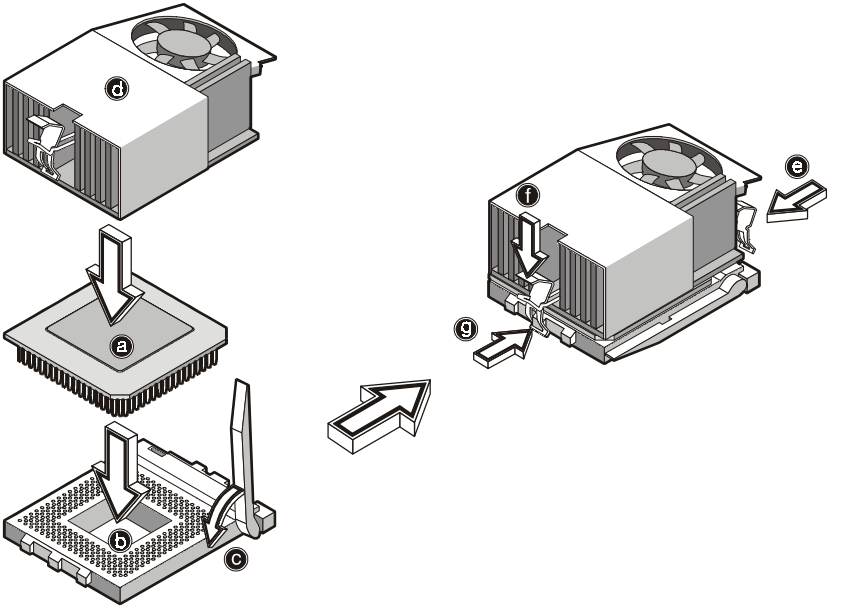
Follow the steps to install a CPU:

1. Remove the processor from its protective packaging.
2. Insert the new CPU into the CPU socket (a and b). Make sure that pin 1 (indicated by a notched corner) of the CPU connects to hole 1 of the socket.

Push down the socket lever to lock the new CPU into the socket.

You need to install a terminator board into the CPU2 socket if you only install one CPU (must be installed in the CPU1 socket). Also, change JP10 to “ON” if you install a terminator board into the CPU2 socket.

3. Attach one side of the fan/heatsink metal bracket to the CPU socket (e) and then gently push down the other side of the metal bracket (f) until it locks in place (g).



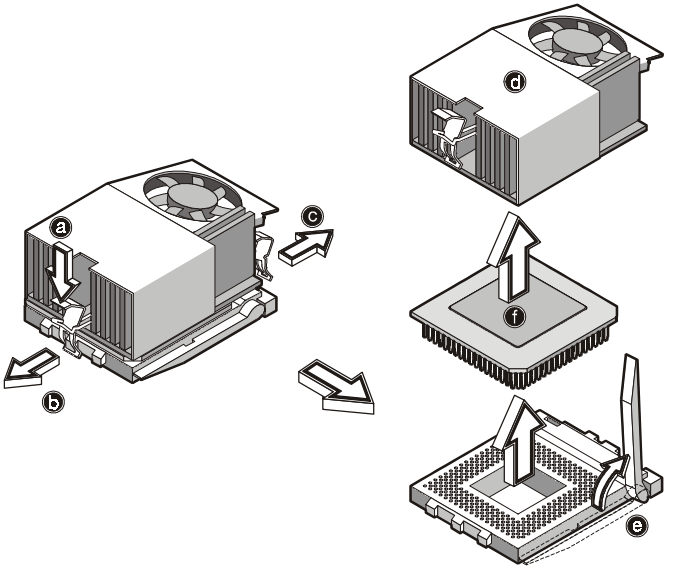
4. Connect the 3-pin and 2-pin fan /heatsink cables to the motherboard. Refer to "Motherboard Layout" on page 29 for the location of the fan/heatsink connectors.

The heatsink becomes very hot when the system is on. Never touch the heatsink with any metal or with your hand.

1.5.2 Removing a CPU

Following these steps to remove a CPU:

1. Disconnect the 3-pin and 2-pin fan/heatsink cables from the system board.
2. Release the fan/heatsink metal bracket by pressing the hook (a). Unhook one side of the fan/heatsink metal bracket (b) and gently lift it before removing the other side (c and d).
3. Push the socket lever down to release the lever (e) and then carefully remove the CPU (f)



1.6 Installing and Removing Memory Modules

The four 168-pin sockets on board support SDRAM type DIMMs. You may install 128, 256, 512 or 1024MB (single and double density) DIMM for a maximum of 4GB system memory.

The SDRAM should work under 3.3V only; 5V memory devices are not supported.

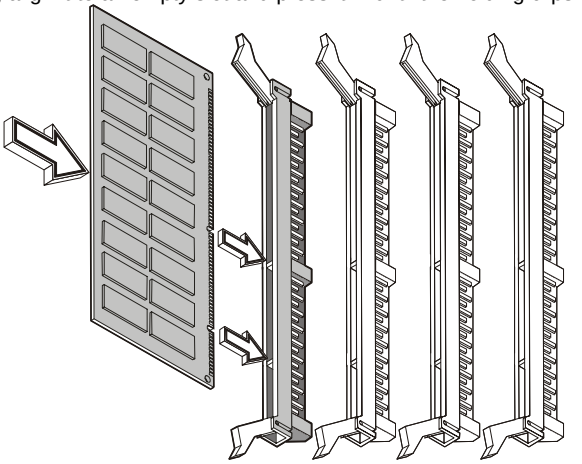
This motherboard supports PC-100 and PC-133 SDRAM. However, they cannot be used at the same time in the system.

Do not use both PC-100 and PC-133 SDRAM together. This might cause your system to malfunction. For a list of qualified DIMM vendors, please contact your reseller.

Each of the DIMM sockets is independent from the others. This independence allows you to install DIMMs with different capacities to form different configuration.

1.6.1 Installing a DIMM

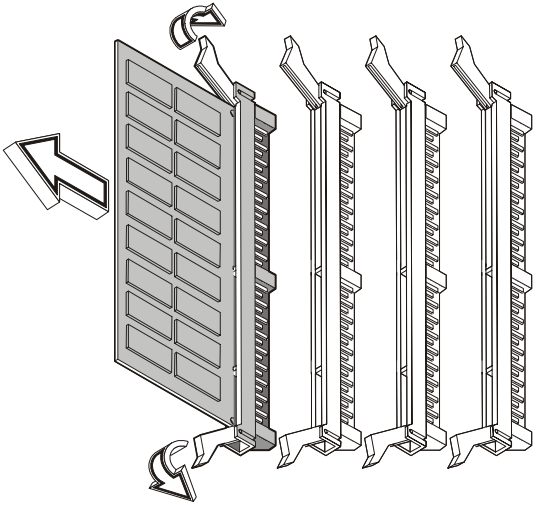
To install a DIMM, align it to an empty slot and press it in until the holding clips secure the DIMM in place.



The DIMM socket is slotted to ensure proper installation. If you slip in a DIMM but it does not completely fit, you may insert it the wrong way. Reverse the orientation of the DIMM.

1.6.2 Removing a DIMM

To remove a DIMM, press the holding clips on both sides of the socket outward to release the DIMM.



Place your forefingers on the top of the DIMM before you press the holding clips to gently disengage the DIMM from the socket.

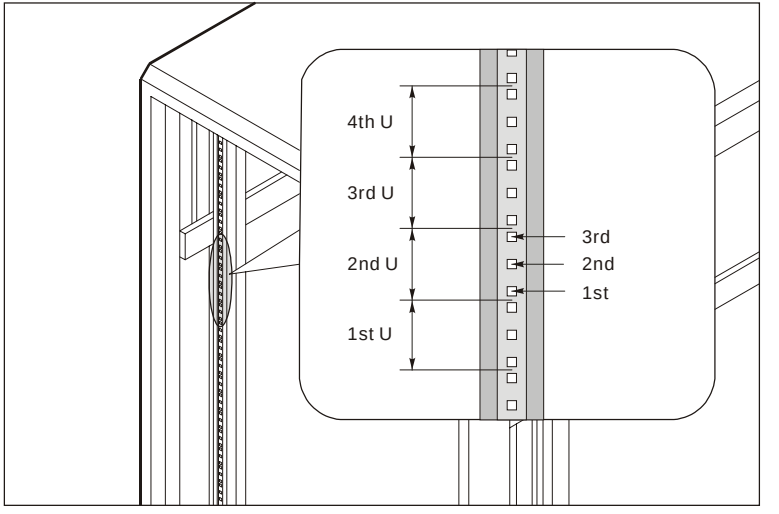
1.6.2 Reconfiguring the system

The system automatically detects the amount of memory installed. Run BIOS Setup to view the new value for total system memory and make a note of it.

1.7 Server Rack Installation (Optional)

1.7.1 Vertical mounting hole pattern

The four vertical rails of a rack contain mounting holes arranged in a manner shown in this figure.



The system occupies 1U in the rack. Count the U positions and hole numbers from the bottom up.

The unit of measurement used in this document is “U” (1U=1.75 inches or 44.45mm). The total sum of the height of all components in the rack measured in “U” cannot exceed the height of the rack. For more information, please refer to the rack’s documentation.

The distance from the center of two holes with closer spacing to the center of the next pair is equivalent to 1U.

When installing components, you must start your measurement from the center of the two holes with closer spacing. Otherwise, the screw holes on the component may not match with those on the rack.

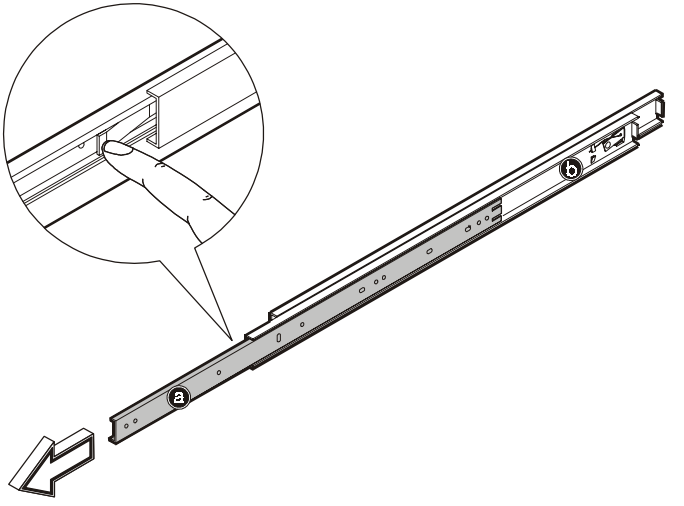
1.7.2 Installing cage nuts

To install the system into the rack:

The rails allow the system to slide in and out of the rackmount for maintenance purposes. Follow these steps to install the mounting rails:

1. Extend the component rail (a) from the mounting rail (b) until the component rail release latch clicks. Hold down the latch and slip the component rail out of the mounting rail. Do the same thing to the other mounting rail.

Each mounting rail consists of a fixed outer piece that screws onto the mounting bracket and an inner sliding piece controlled by a steel ball gear movement. This inner sliding piece is not detachable.



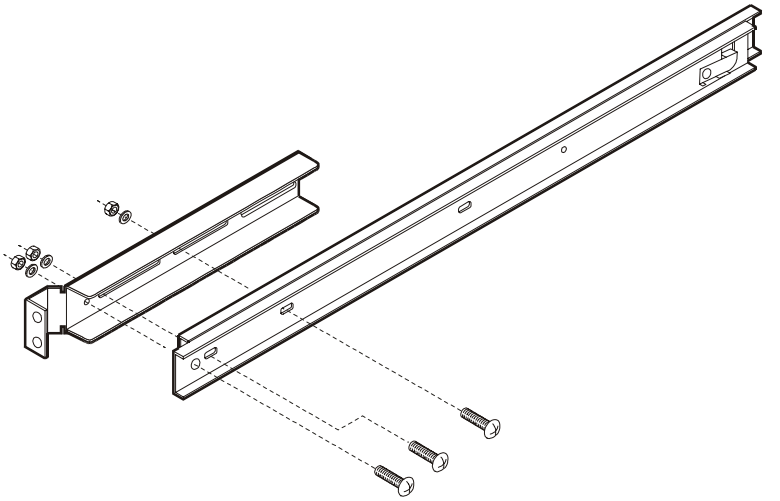
2. Put the component rails aside.

3. Attach the mounting brackets to the mounting rails. The mounting brackets consist of two metal bars to be attached on both ends of the mounting rails.

   a. Attach the mounting bracket to the front end of the mounting rail and align the screw holes.

Look for an imprint that says front or rear on the mounting bracket. Install the mounting bracket on the appropriate side; otherwise, it will not fit correctly into the rack.

   b. Secure it with three M4x8L screws with nut and washer as shown below. Slide and adjust the inner piece of the mounting rail to gain access to the screw holes. The position of the mounting bracket on this end is fixed.



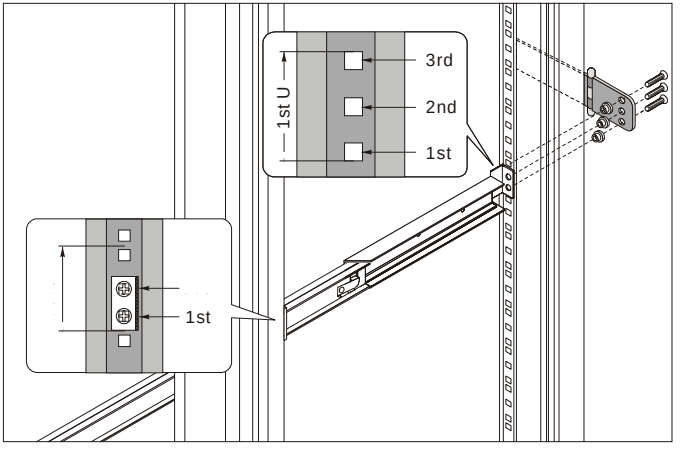
c. Extend the inner sliding piece of the mounting rail until you can see the screw holes on the other end. Attach the mounting bracket to the rear end and secure it with two screws. The mounting rail in this end is adjustable.

4. Attach the mounting brackets and the cable carrier to the rack with nine M6 screws.

   a. Install the left mounting bracket first using four M6 screws.

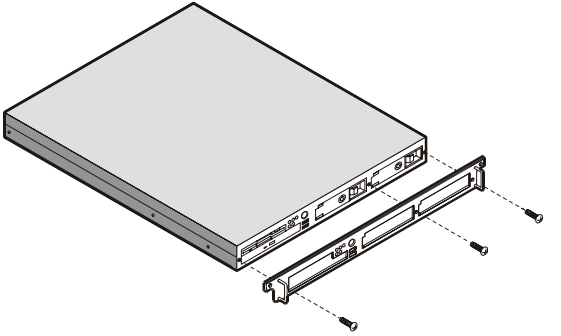
The system occupies 1U. Count the U positions and hole numbers from the bottom up. Secure the mounting bracket on the 1st and 2nd holes of the 1st U using four M6 screws. Make sure that both of the mounting brackets are at the same level. Take note of the vertical rail hole pattern. See "Vertical mounting hole pattern" on page 52

b. Install the right mounting bracket with the cable carrier using five M6 screws. The cable carrier is installed on the rear as shown below.

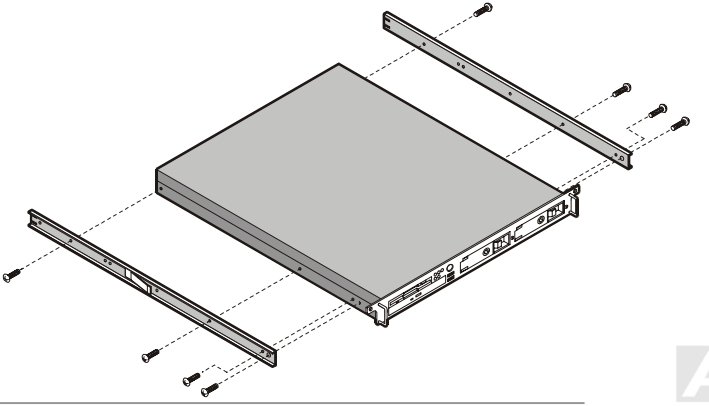


The cable carrier allows you to tie-wrap all cables to and from the server. As you slide the system in and out of the rack, the cable carrier collapses and extends, keeping the cables untangled and attached to the system.

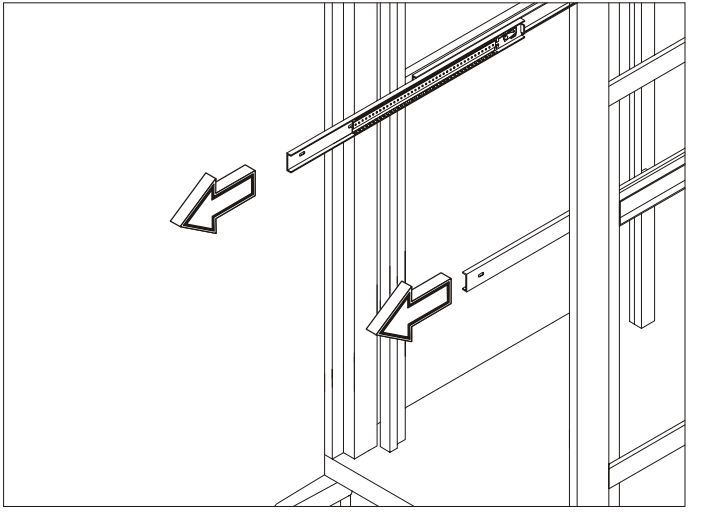
5. Secure the front panel to the system with three M3 screws.



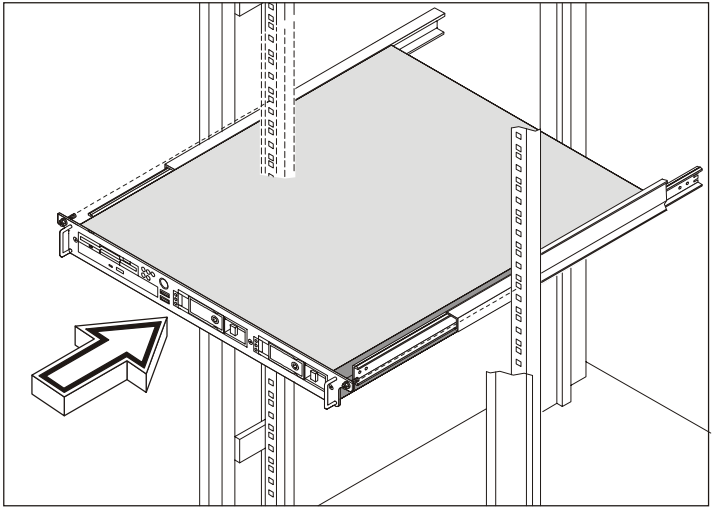
6. Attach the component rails to the system with eight M4x5L screws.



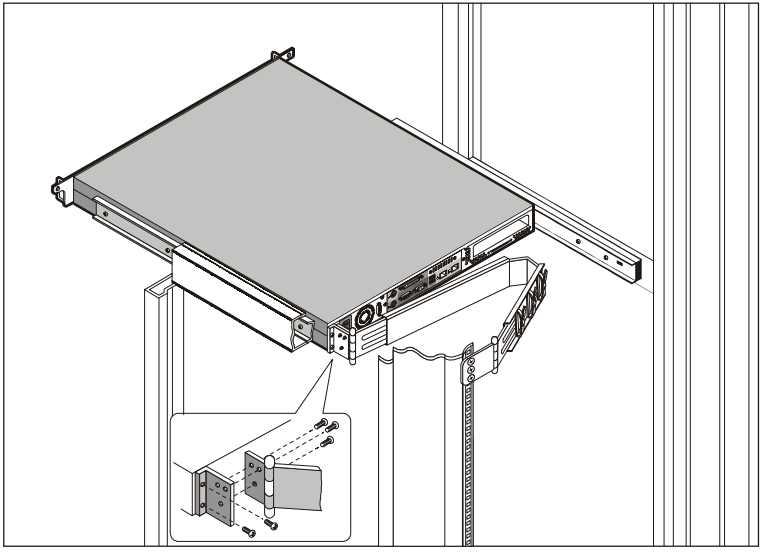
7. Extend the inner sliding piece of the mounting bracket.



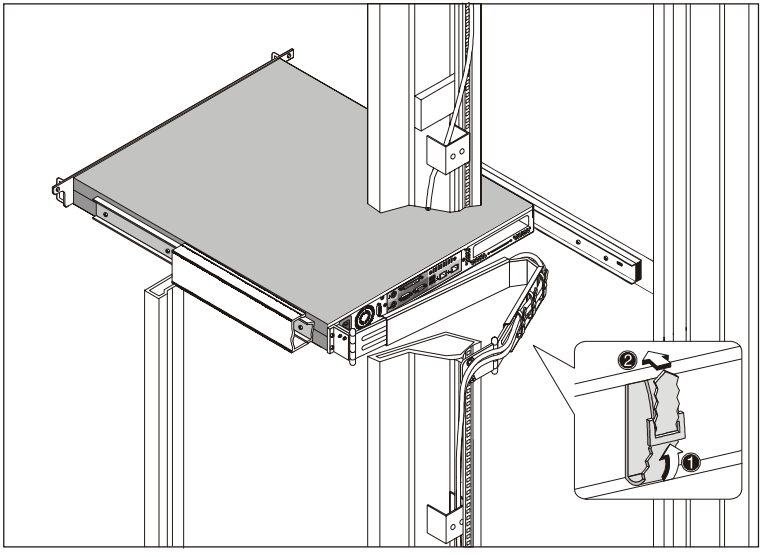
8. Slide the system into the rack.



9. Attach the cable carrier arm bracket to the rear of the system using two #6-32 screws. See the figure shown as below.
10. Attaching cable carrier to the cable carrier arm bracket using three #6-32 screws.



11. Pull out the system to extend the cable carrier. Bundle all cables to the cable carrier with the cable straps. Route all cables from the cable carrier to the cable management bracket located on the rear of the rack.



12. Install two cage nuts (see page 54) and secure the system to the rack using two M6 screws.

Chapter 2 BIOS Setup Utility

Most of system had already configured by the manufacturer or the dealer. There is no need to run BIOS setup program when starting the computer unless you get a run setup program message.

The setup program loads configuration values into the battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM.

If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.

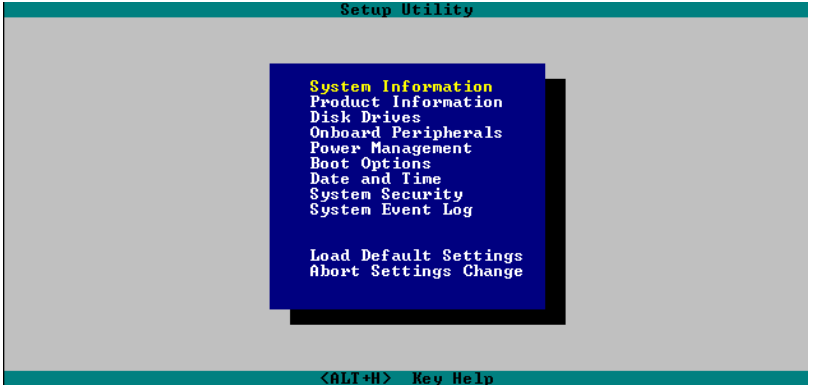
The system will reboot immediately after you exit Setup.

2.1 Entering Setup

To enter Setup, press the DELETE key.

You must press DELETE while the system is booting. This key does not work during any other time.

The Setup Utility Main Menu appears:



The system supports two BIOS Utility levels: Basic and Advanced.

If you are an advanced user, you may want to check the detailed configuration of your system.

Detailed system configurations are contained in the Advanced Level. To view the Advanced Level, press F8.

The asterisk (*) mark indicates that the parameter appears only when you are in the Advanced Level.
The parameters on the screens show default values. These values may not be the same as those in your system.
The grayed items on the screens have fixed settings and are not user-configurable.

Use the arrow keys ↑ and ↓ to move around the Setup Utility screen.

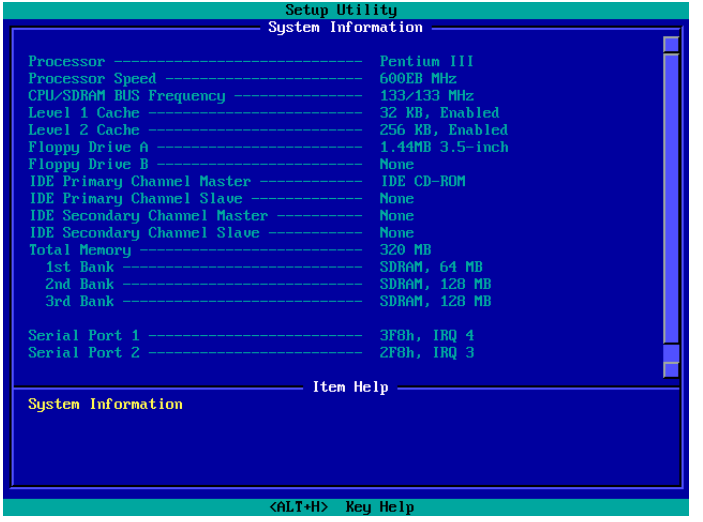
Use ← to move to the next page or → to return to the previous page if the setup screen has more than one page available.

Use PGUP, PGDN, "+" or "-" to select the options if they are available.

Press ESC to return to the Main menu.

2.2 System Information

The following screen appears if you select System Information from the Main menu:



The System Information menu shows the current basic configuration of your system.

The sections below explain the parameters.

2.2.1 Processor

The Processor parameter specifies the type of processor currently installed in your system. The system supports Intel Pentium® II and Pentium® III processors.

2.2.2 Processor Speed

The Processor Speed parameter specifies the speed of the processor currently installed in your system.

2.2.3 CPU/SDRAM BUS Frequency

This parameter specifies the currently FSB (Front Side Bus) frequency of the CPU/SDRAM.

2.2.4 Level 1 Cache

This parameter specifies the first-level or the internal fast accessed memory (i.e., the memory integrated into the CPU) size, and whether it is enabled or disabled.

2.2.5 Level 2 Cache

This parameter specifies the second-level cache memory size that comes with the CPU. The available cache size is 256/512 KB.

2.2.6 Diskette Drive A

This parameter specifies the system's current diskette drive A settings.

2.2.7 Diskette Drive B

This parameter specifies the system's current diskette drive B settings.

2.2.8 IDE Primary Channel Master

This parameter specifies the current configuration of the IDE device connected to the master port of the primary IDE channel.

2.2.9 IDE Primary Channel Slave

This parameter specifies the current configuration of the IDE device connected to the slave port of the primary IDE channel.

2.2.10 Total Memory

This parameter specifies the total amount of onboard memory. The memory size is automatically detected by BIOS during the POST. If you install additional memory, the system automatically adjusts this parameter to display the new memory size.

1st Bank/2nd Bank/3rd Bank

The 1st Bank, 2nd Bank, and 3rd Bank parameters indicate the type and size of DRAM installed in DIMM sockets 1, 2, and 3 respectively. The "**None**" setting indicates that there is no DRAM installed. For the location of the DIMM sockets, refer to section 2.3 or 2.4.

2.2.11 1st/2nd/3rd Bank

Type and Size of DRAM installed in DIMM socket 1, 2, 3 and 4 respectively. The "**None**" setting indicates that there is no DRAM installed.

2.2.12 Serial Port 1

This parameter shows the serial port 1 address and IRQ setting.

2.2.13 Serial Port 2

This parameter shows the serial port 2 address and IRQ setting.

2.2.14 Parallel Port

This parameter shows the parallel port address and IRQ setting.

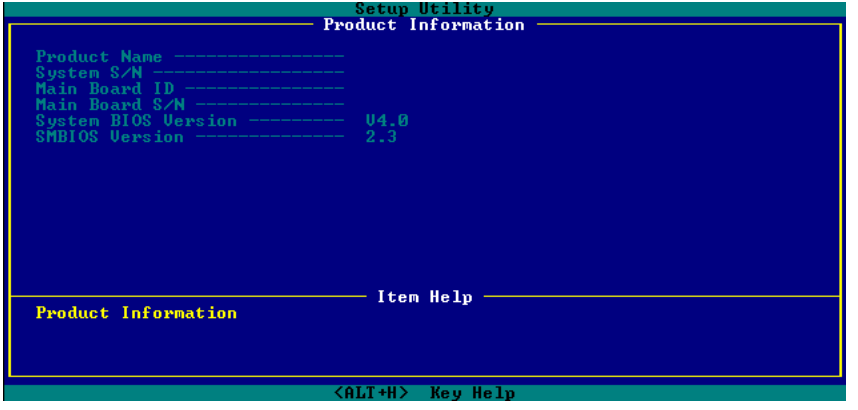
2.2.15 PS/2 Mouse

The BIOS utility automatically detects if there is a pointing device connected to your system. If there is, this parameter displays the “**Installed**” setting. Otherwise, this is set to “**None**”.

2.3 Product Information

The Product Information contains the general data about the system, such as the product name, serial number, BIOS version, etc. This information is necessary for troubleshooting (may be required when asking for technical support).

The following shows how the Product Information screen appears:



2.3.1 Product Name

This parameter specifies the official name of the system.

2.3.2 System S/N

This parameter specifies the system's serial number.

2.3.3 Main Board ID

This parameter specifies the motherboard's identification number.

2.3.4 Main Board S/N

This parameter specifies the motherboard's serial number.

2.3.5 System BIOS Version

This parameter specifies the version of the BIOS utility.

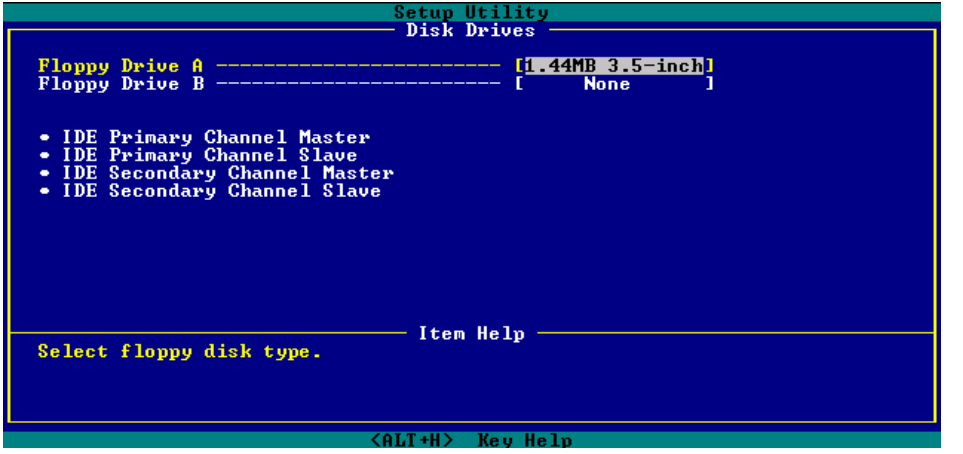
2.3.6 SMBIOS Version

This parameter specifies the version of the SMBIOS version.

2.4 Disk Drives

Select Disk Drives to input configuration values for disk drives.

The following screen shows the Disk Drives menu:



2.4.1 Floppy Drives

To enter the configuration value for the first floppy drive, highlight the Floppy Drive A parameter. Press PGUP or PGDN, key to view the options and select the appropriate value.

Drive A/Drive B
None
360KB 5.25"
1.2MB 5.25"
720KB 3.5"
1.44MB 3.5"
2.88MB 3.5"

These items select the floppy drive type. The available settings and types supported by the motherboard are listed to the left.

Follow the same procedure to configure floppy drive B. Choose "**None**" if you do not have a second floppy drive.

2.4.2 IDE Drives

To configure the IDE drives connected to your system, select the parameter that represents the channel and port where the desired hard disk to configure is connected. The options are:

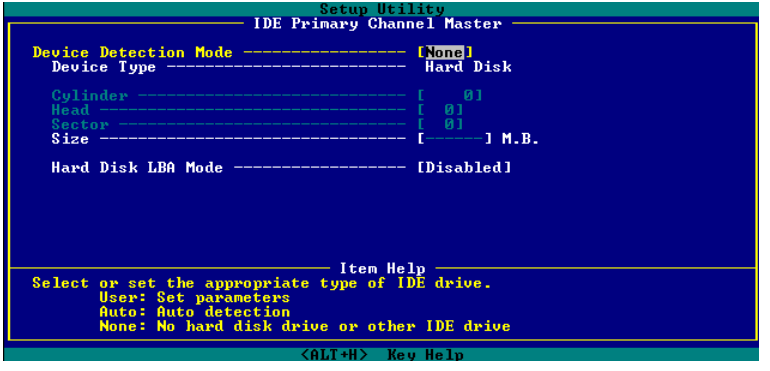
IDE Primary/Secondary Channel Master

This option lets you configure the hard disk drive connected to the master port of IDE channel 1/2.

IDE Primary/Secondary Channel Slave

This option lets you configure the hard disk drive connected to the slave port of IDE channel 1/2.

The following screen appears if you select any of the IDE Drive parameters:



2.4.3 Device Detection Mode

Device Detection Mode
Auto (Default)
User
None

If you select “Manual”, you need to fill in all remaining field, such as Cylinder, Head, and Sector on this selected item. If the item “Auto” is selected, the items will remain “0”. And when the system boot up, system will detect the hard disk and configure it automatically. “None” means there is no device in the channel.

Device Type

This parameter shows which type of IDE drive currently used.

Cylinder

This parameter specifies the number of cylinders of your hard disk, and is automatically set depending on your Type parameter setting.

Head

This parameter specifies the number of heads of your hard disk, and is automatically set depending on your Type parameter setting.

Sector

This parameter specifies the number of sectors of your hard disk, and is automatically set depending on your Type parameter setting.

Size

This parameter specifies the size of your hard disk, in MB.

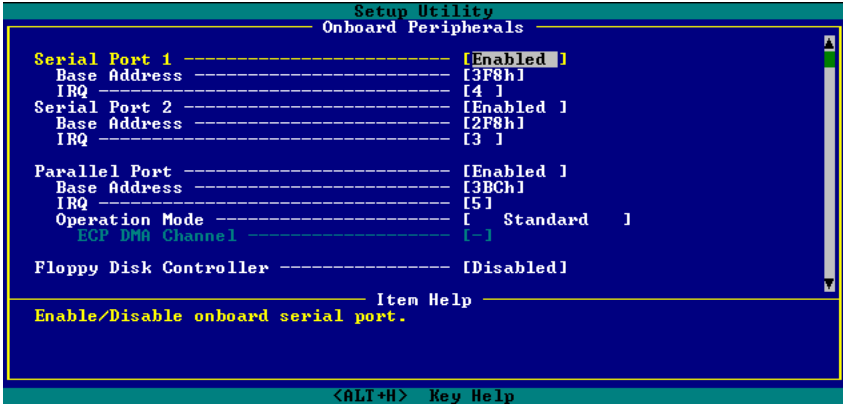
2.4.4 Hard Disk LBA Mode

Hard Disk Block Mode
Auto (Default)
Disabled

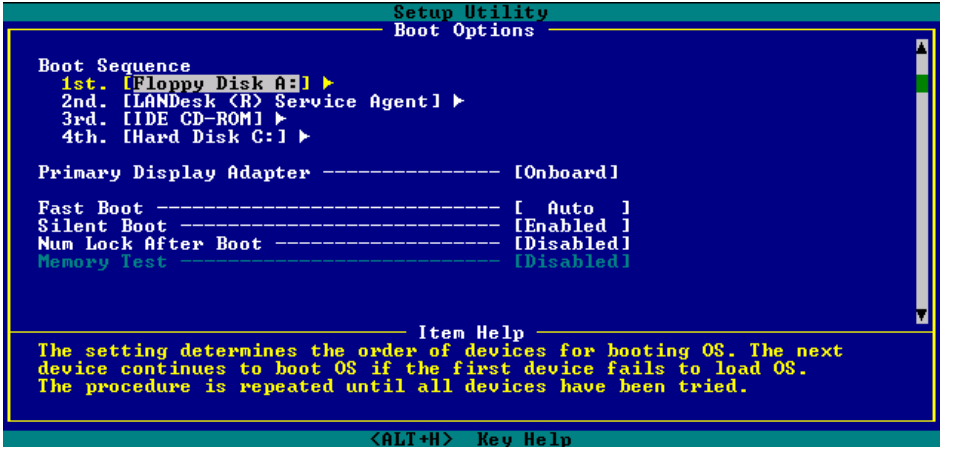
This function enhances disk performance depending on the hard disk in use. If you set this parameter to "**Auto**", the BIOS utility automatically detects if the installed hard disk drive supports the Block Mode function. If supported, it allows data transfer in blocks (multiple sectors) at a rate of 256 bytes per cycle. To disregard the feature, change the setting to "**Disable**".

2.5 Onboard Peripherals

The Onboard Peripherals Configuration allows you to configure the onboard communication ports and the onboard devices. Selecting this option displays the following screen:



This page is the lower half of Onboard Peripherals submenu.



2.5.1 Serial Ports 1 and 2

Serial Port 1 & 2
Enabled (Default)
Disabled

These parameters allow you to enable or disable serial ports 1 and 2.

2.5.1.1 Base Address

Base Address
Serial Port 1:
3F8h (Default)
3E8h
2E8h
Serial Port 2:
2F8h (Default)
2E8h
3E8h

This item allows you to assign address and interrupt for the board serial port.

2.5.1.2 IRQ

IRQ
Serial Port 1:
4 (Default), 11
Serial Port 2:
3 (Default), 10

This function lets you assign an interrupt for serial ports 1 and 2. The options for serial ports 1 are IRQ 4 and 11. The options for serial port 2 are IRQ 3 and 10.

The Base Address and IRQ parameters for each port are configurable only if the port is enabled.

2.5.2 Parallel Port

Parallel Port
Enabled (Default)
Disabled

This parameter allows you to enable or disable the parallel port.

2.5.2.1 Base Address

Base Address
378h (Default)
3BCh
278h

This item allows you to assign address and interrupt for the board serial port.

2.5.2.2 IRQ

IRQ
7 (Default), 5

This function lets you assign an interrupt for the parallel port. The options are IRQ 5 and 7.

The Base Address and IRQ parameters are configurable only if Parallel Port is enabled.

If you install an add-on card that has a parallel port whose address conflicts with the onboard parallel port, a warning appears on the screen.

Check the parallel port address of the add-on card and change the address to one that does not conflict.

2.5.2.3 Operation Mode

Operation Mode
EPP (Default)
Bi-Directional
Standard
ECP

This item lets you set the parallel port mode. The mode options are Standard, Bi-directional, EPP (Enhanced Parallel Port) and ECP (Extended Parallel Port).

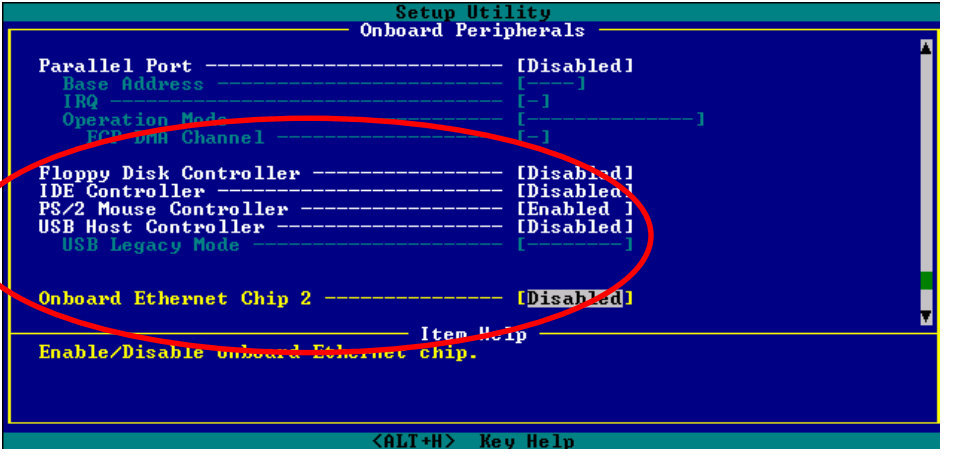
Setting	Function
Standard Parallel Port (Standard)	Allows normal speed one-way operation
Bi-directional Parallel Port (Bi-directional)	Allows normal speed operation in a two-way mode
Enhanced Parallel Port (EPP)	Allows bi-directional parallel port operation at maximum speed
Extended Capabilities Port (ECP)	Allows parallel port to operate in bi-directional mode and at a speed higher than the maximum data transfer rate

2.5.2.4 ECP DMA Channel

ECP Mode Use DMA	This item becomes active only if you select Extended Capabilities Port (ECP) as the operation mode. It allows you to assign DMA channel 1 or DMA channel 3 for the ECP parallel port function (as required in Windows 95).
3	
1 (Default)	

2.5.3 Onboard Device Settings

The Onboard Device Settings menu allows you to configure the onboard communication ports and the onboard devices. Selecting this option from the Onboard Peripherals menu displays the following screen:



2.5.3.1 Floppy Disk Controller

Floppy Disk Controller
Enabled (Default)
Disabled

This parameter lets you enable or disable the onboard floppy disk controller.

2.5.3.2 IDE Controller

IDE Controller
Both (Default)
Primary
Disabled

Set this parameter to "**Primary**" to enable only the primary IDE controller; "**Both**" to enable both primary and secondary IDE controllers; or "**Disabled**" to disable all IDE controllers.

2.5.3.3 PS/2 Mouse Controller

PS/2 Mouse Controller
Enabled (Default)
Disabled

This parameter enables or disables the onboard PS/2 mouse controller.

2.5.3.4 USB Host Controller

USB Host Controller
Enabled (Default)
Disabled

This parameter lets you enable or disable the USB controller on board. When enabled, it activates the USB function of the system. When disabled, it deactivates the function.

2.5.3.5 USB Legacy Mode

USB Legacy Mode
Enabled
Disabled (Default)

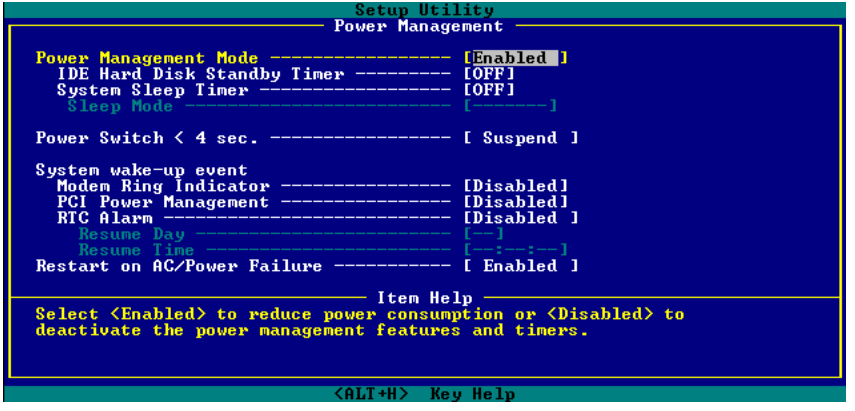
This parameter lets you enable or disable the USB controller on board. When enabled, it activates the USB function of the system. When disabled, it deactivates the function.

2.5.3.6 Onboard Ethernet Chip 2

On-board Ethernet Chip 2 Enabled Disabled (Default)	This parameter allows you to enable or disable the function of onboard Ethernet controller 2.

2.6 Power Management

The Power Management menu allows you to configure the system power-management feature. The following screen shows the Power Management parameters and their default settings:



A parameter with an asterisk (*) mark indicates that the parameter appears only when you are using in the **Advanced Level**. See "**Entering Setup**" on Page

2.6.1 Power Management Mode

Power Management Mode
Enabled (Default)
Disabled

This parameter allows you to reduce power consumption. When this parameter is set to "**Enabled**", you can configure the IDE hard disk and system timers. Setting it to "**Disabled**" deactivates the power-management feature and its timers.

2.6.1.1 IDE Hard Disk Standby Timer

IDE Hard Disk Standby Timer
Off (Default)
1 to 15min

This parameter allows the hard disk to enter standby mode after inactivity of **1 to 15** minutes, depending on your setting. When you access the hard disk again, allow 3 to 5 seconds (depending on the hard disk) for the disk to return to normal speed. Set this parameter to "**Off**" if your hard disk does not support this function.

2.6.1.2 System Sleep Timer

System Sleep Timer	This parameter sets the system to the lowest power-saving mode after a specified period of inactivity. Any keyboard or mouse action or any activity detected from the IRQ channels resumes system operation.
Off (Default)	
120, 110, 100…20, 15, 10, 5, 2min	

2.6.1.3 Sleep Mode

Sleep Mode	This parameter lets you specify the power-saving mode that the system will enter after a specified period of inactivity. The options are "**Standby**" and "**Suspend**" modes. This parameter becomes configurable only if the System Sleep Timer is enabled. Any keyboard or mouse action, or any enabled monitored activities occurring through the IRQ channels resume system operation.
Standby	
Suspend (Default)	

2.6.2 Power Switch < 4 sec.

Power Switch < 4 Sec.
Suspend
Power Off (Default)

When set to "**Power Off**", the system automatically turns off when the power switch is pressed for less than 4 seconds. When set to "**Suspend**", the system enters the suspend mode when pressed for less than 4 seconds.

2.6.3 System Wake-up Event

The system wake-up event allows the system to resume operation when the modem ring indicator is enabled.

2.6.3.1 Modem Ring Indicator

Modem Ring Indicator
Enabled
Disabled (Default)

When "**Enabled**" any fax/modem activity wakes up the system from suspend mode. The default setting is "**Disabled**".

2.6.3.2 PCI Power Management

PCI Power Management
Enabled (Default)
Disabled

This item allows you to enable or disable the PCI power management function.

2.6.3.3 RTC Alarm

RTC Alarm
Enabled
Disabled (Default)

This item allows you to set a certain time on a certain day to wake-up the system from suspend mode.

Resume Day

Resume Day
1 to 31

This item is displayed when you enable the **"RTC Timer"** option. Here you can specify what date you want to wake up the system. For example, setting to 15, the system will wake up on the 15th day of every month.

Resume Time

Resume Time
hh:mm:ss

This item is displayed when you enable the RTC Wake Up Timer option. Here you can specify what time you want to wake up the system.

2.6.3.4 Restart On AC/Power Failure

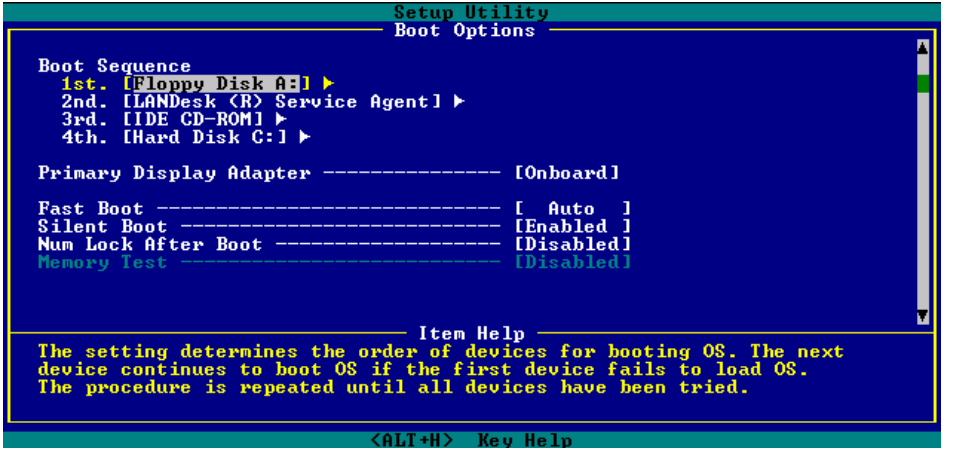
Restart On AC/Power Failure
Enabled
Disabled (Default)
Pre-State

When "**Enabled**", the system automatically turns on when the power comes back. When "**Disabled**" the system turns off and does not turn on when the power comes back. When set to "**Pre-State**", the system maintains the last power state when the power comes back.

2.7 Boot Options

This option allows you to specify your preferred setting for boot up.

The following screen appears if you select Boot Options from the Basic Configuration menu:



2.7.1 Boot Sequence

This parameter allows you to specify the boot search sequence during POST.

- 1st. The system checks this drive first.
- 2nd. The system then checks this drive if it can not boot from the 1st specified drive.
- 3rd. If the 1st and 2nd searches fail then it boots from this drive.
- 4th. If the 1st, 2nd, and 3rd searches fail then it boots from this drive.

BIOS will display an error message if the drive(s) specified is not bootable.

2.7.2 Primary Display Adapter

Primary Display Adapter
Auto
Onboard (Default)

This parameter lets you activate the onboard video controller as your primary display adapter, or automatically disable it once BIOS detects that there is a video card installed in your system.

2.7.3 Fast Boot

Fast Boot
Auto (Default)
Disabled

This parameter allows the system to boot faster by skipping some POST routines.

2.7.4 Silent Boot

Silent Boot
Enabled (Default)
Disabled

This parameter enables or disables the Silent Boot function. When set to "**Enabled**", BIOS is in graphical mode and displays only an identification logo during POST and while booting. After booting the screen displays the operating system prompt (such as DOS) or logo (such as Windows 95). If any error occurs while booting, the system automatically switches to the text mode.

Even if your setting is "**Enabled**", you may also switch to the text mode while booting by pressing DEL when you see the "**Press DELETE key to enter setup**" message on the screen.

When set to "**Disabled**", BIOS is in the conventional text mode where you see the system initialization details on the screen.

2.7.5 Num Lock After Boot

Num Lock After Boot
Enabled (Default)
Disabled

This parameter allows you to activate the Num Lock function upon booting.

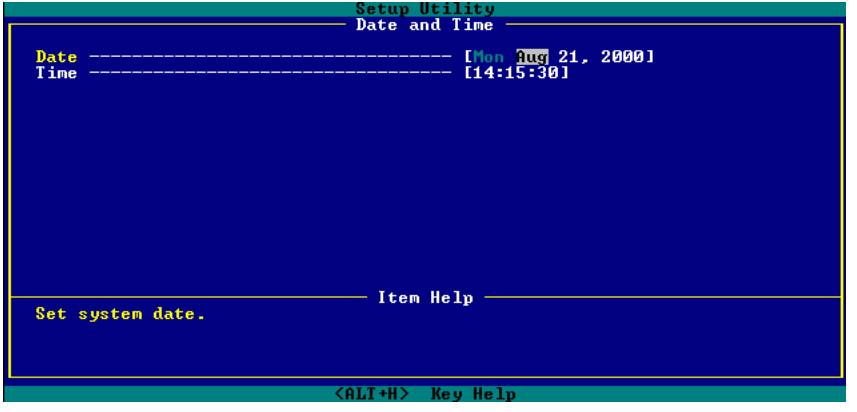
2.7.6 Memory Test

Memory Test
Enabled
Disabled (Default)

When set to "**Enabled**", this parameter allows the system to perform a RAM test during the POST routine. When set to "**Disabled**", the system detects only the memory size and bypasses the test routine.

2.8 Date and Time

The real-time clock keeps the system date and time. After setting the date and time, you do not need to enter them every time you turn on the system. As long as the internal battery remains good (approximately seven years) and connected, the clock continues to keep the date and time accurately even when the power is off.



2.8.1 Date

Date
ww:mm:dd:yy

Highlight the items on the Date parameter and press PGUP or PGDN to set the date following the weekday-month-day-year format.

Valid values for weekday, month, day, and year are:

- Weekday: Sun, Mon, Tue, Wed, Thu, Fri, Sat
- Month: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec
- Day: 1 to 31
- Year: 1980 to 2079

2.8.2 Time

Time
hh:mm:ss

Highlight the items on the Time parameter and press PGUP or PGDN to set the time following the hour-minute-second format.

Valid values for hour, minute, and second are:

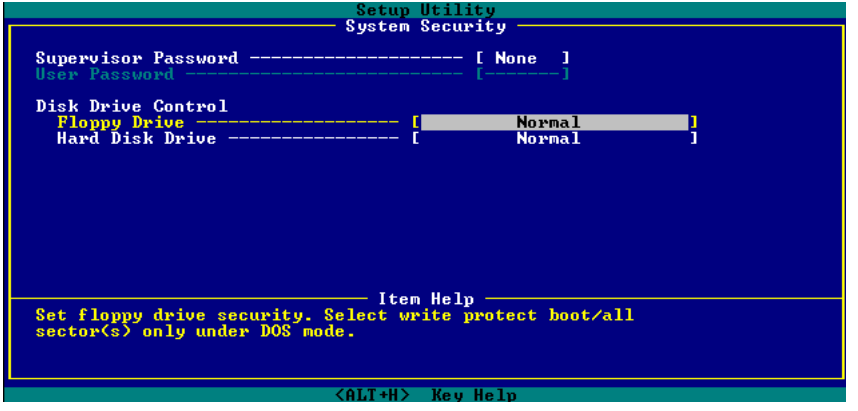
- Hour 00 to 23

- Minute 00 to 59
- Second 00 to 59

2.9 System Security

The Setup program has a number of security features to prevent unauthorized access to the system and its data.

The following screen appears if you select System Security from the Main menu:



2.9.1 Supervisor Password

Supervisor Password	This item can prevent unauthorized access to the BIOS utility. The "**Present**" setting allows you to set a setup password.
None (Default)	
Present	

1. Enable the Supervisor Password parameter in the System Security menu by pressing the ENTER key. The Supervisor Password windows will appear as shown above.
2. Type a password. The password may consist of up to seven characters.

Be very careful when typing your password because the actual characters do not appear on the screen.

3. Press the ENTER key. Re-type the password to verify your first entry then press ENTER key again.
4. Highlight the "**Set or change password**" option and press ENTER key.
5. Press the ESC key to return the System Security screen.
6. Press the ESC key to exit setup. The Exit Setup screen will appear.
7. Choose "**Yes**" to save your setting and exit Setup. Your password will be saved to CMOS.
8. If you want to remove the password, please select "**Disabled**" to disable this function.

2.9.2 User Password

User Password
None (Default)
Present

This item can secure your system against unauthorized use. Once you set this password, you have to type it whenever you boot the system. This item is available when only Supervisor Password is set.

2.9.3 Disk Drive Control

The disk drive control features allow you to control the floppy drive or the hard disk drive boot function to prevent loading operating systems or other programs from a certain drive while the other drives are operational (under DOS mode only).

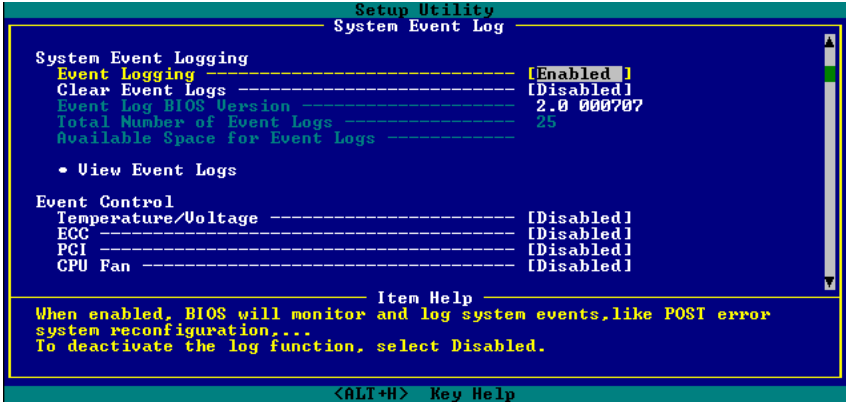
The table below lists the drive control settings and their corresponding functions.

Floppy Drive	
Setting	Description
Normal	Floppy drive functions normally
Write Protect All Sectors	Disables the write function on all sectors

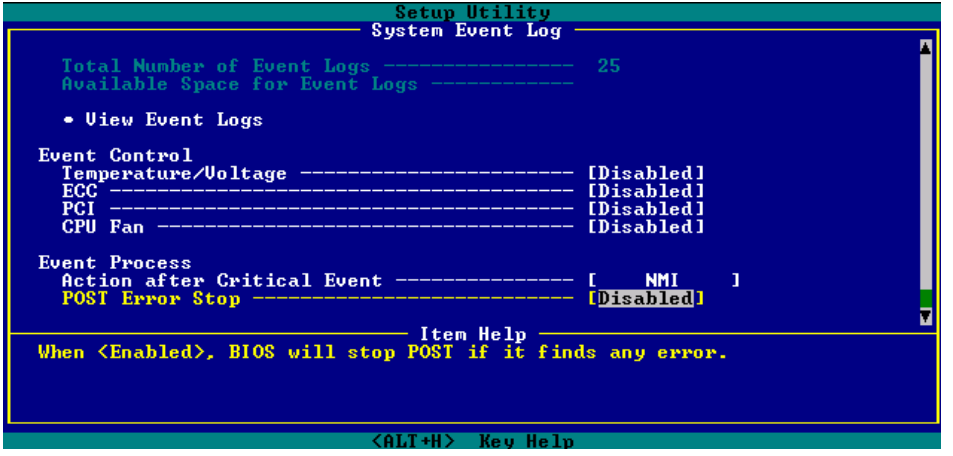
Write Protect Boot Sector	Disables the write function only on the boot sector
Hard Disk Drive	
Setting	Description
Normal	Hard disk drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on the boot sector

2.10 System Event Log

The system event log enables you to record and monitor events that occurs in your system like system temperature, fan stops, and others. This feature allows you to specify the appropriate settings for your system's event handling. Selecting the option displays the following screen:



This page is the lower half of System Event Log submenu.



2.10.1 System Event Logging

This option allows you to record monitored events that occur during the operation of your system.

2.10.1.1 Event Logging

Event Logging
Enabled (Default)
Disabled

This item allows you to enable or disable the system event logging function.

2.10.1.2 Clear Event Logs

Clear Event Logs
Enabled
Disabled (Default)

This item allows you to enable or disable the system event logs clearing function. Please enable it if you want to clear the event log whenever the event log area is full.

2.10.1.3 Event Log BIOS Version

Event Log BIOS Version

This parameter specifies the version of the Event Log BIOS.

2.10.1.4 Total Number of Event Logs

Total Number of Event Logs	The currently number of events located in the event log area.

2.10.1.5 Available Space for Event Logs

Available Space for Event Logs	The percentage of space that is still available for logging system events.

2.10.1.6 View Event Logs

View Event Logs	Opens the system event log file for viewing.

2.10.2 Events Control

This parameter monitors the following events and logs them into the event log file if there is a change in status.

2.10.2.1 Temperature/Voltage/Fan

Temperature/Voltage/ Fan Enabled (Default) Disabled	Enable or disable the monitoring of the system's temperature, voltage, and CPU fan.

2.10.2.2 ECC

ECC Enabled (Default) Disabled	ECC or Error-Correcting Code tests the accuracy of data as it passes in and out of memory. This parameter enables or disables the monitoring of this function.

2.10.2.3 PCI

PCI
Enabled (Default)
Disabled

PCI or Peripheral Component Interconnect is a 32-bit bus that can run at clock speeds of 33 MHz. This parameter monitors the activity of this bus when set to enabled.

2.10.3 Event Process

2.10.3.1 Action After Critical Event

Action After Critical Event
NMI (Default)
Power Cycle
Reset

This parameter allows you to select the action after BIOS finds a critical event. The critical events include multiple bits ECC error and PCI device error.

2.10.3.2 POST Error Stop

Post Error Stop
Enabled (Default)
Disabled

BIOS checking the bad CPUs and memory modules during POST. When this parameter is enabled, BIOS will stop POST operation whenever it finds a bad CPU or memory. Otherwise, if disabled the system will continue running.

2.10.4 Threshold Event Control

Threshold Event Control
Enabled
Disabled (Default)

This parameter lets you enabled or disabled the threshold event control function.

2.10.5 Temperature Threshold Setting

2.10.5.1 CPU

CPU
User Input

This item allows you to set the CPU critical temperature value.

2.10.5.2 System

System User Input	This item allows you to set the system critical temperature value.

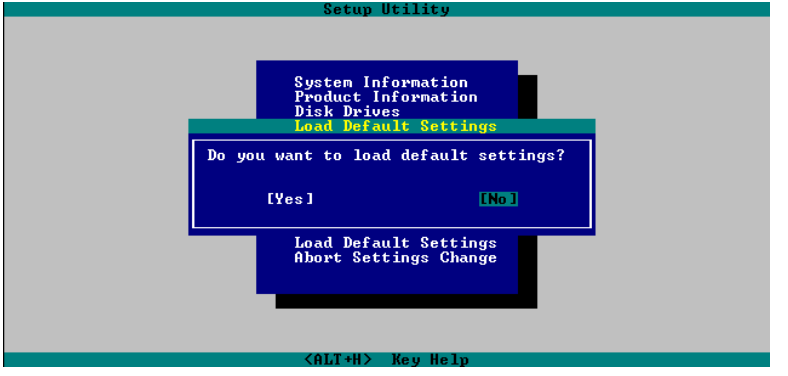
2.10.6 Voltage Threshold Setting

Voltage Threshold Setting CPU	This parameter lets you setting CPU core voltage lower critical threshold value.

2.11 Load Default Settings

Use this option to load the default settings for the optimized system configuration. When you load the default settings, some of the parameters are grayed-out with their fixed settings. These grayed parameters are not user-configurable.

The following dialog box appears when you select Load Default Settings from the main menu:



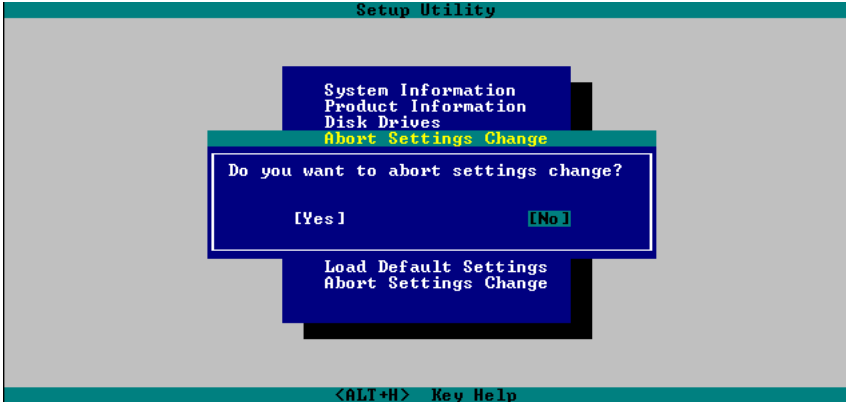
Select "**Yes**" to load the default settings.

Select "**No**" to ignore the message and return to the BIOS utility.

2.12 Abort Settings Change

Use this option to disregard your changes to the BIOS and reload your previous settings.

The following dialog box appears when you select Abort Settings Change from the main menu:



Select "**Yes**" to disregard your changes and reload your previous settings. After reload, the main menu appears on screen.

Select "**No**" to ignore the message and return to the BIOS utility.

Chapter 3 SCSISelect™ Utility

The SCSISelect™ utility allows you to change SCSI controller settings without opening the system or changing jumpers.

The table below lists the settings that you can change using the SCSISelect™ utility and the default value for each setting. Some settings apply globally to the SCSI controller and all SCSI devices on the bus. Other settings apply individually to each device on the bus.

Settings for the SCSI Controller and All Devices

Item	Default
Host Adapter SCSI ID	7
SCSI Parity Checking	Enabled
Host Adapter SCSI Termination	Enabled
Boot Device Option	0 (zero)
Host Adapter BIOS*	Enabled

*** Some settings are valid only if the host adapter BIOS is enabled.**

Support Removable Disks under BIOS as Hard Disks	Boot only
Extended BIOS Translation for DOS Drives > 1 GB	Enabled
Display <Ctrl-A> Message During BIOS Initialization	Enabled
Multiple LUN Support	Disabled
BIOS Support for Bootable CD-ROM	Enabled
Item	Default
BIOS Support for Int13 Extensions	Enabled
Support for Ultra SCSI Speed	Disabled

Individual Settings for SCSI Drives

Item	Default
Initiate Sync Negotiation	Yes
Maximum Sync Transfer Rate	160MB/sec.
Enable Disconnection	Yes
Send Start Unit SCSI Command*	No
Initiate Wide Negotiation	Yes

When to Use the SCSISelect™ Utility

Use the SCSI Select utility if you need to do any one of the following:

- Change any of the default values listed in the SCSI Controller and All Devices Table.
- Check and/or change SCSI device settings that may conflict with those of other devices.
- Perform low-level formatting on new SCSI disk devices.

---

* Some settings are valid only if the host adapter BIOS is enabled.

3.1 Running the *SCSISelect*™ Utility

A screen message giving the option to access the SCSISelect™ utility appears after the BIOS and POST routine.

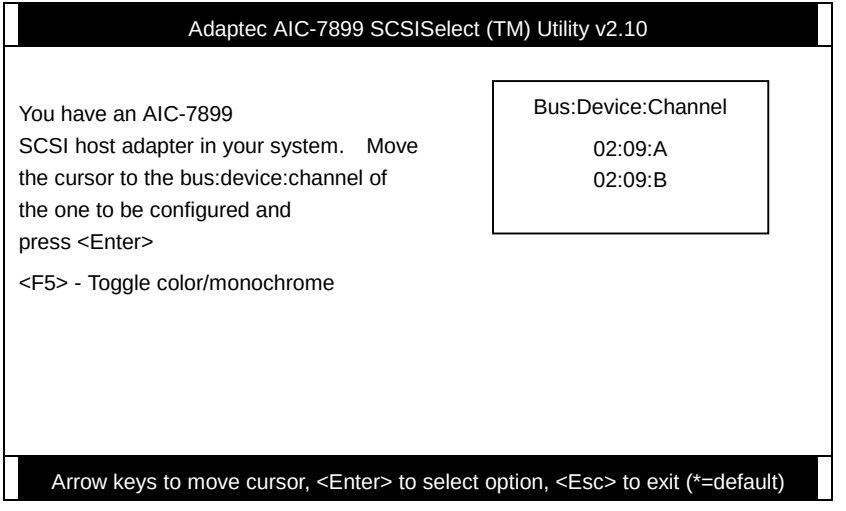
To start the utility, press CTRL + A when the following message appears during power-on or system reset:

```
Press <Ctrl> <A> for SCSISelect™ Utility!
```

Your screen may show the key sequence as CTRL + <Hot Key> instead of CTRL + A. The correct sequence is CTRL + A.

3.2 Utility Options

When the SCSI Select utility detects that the AIC-7899 SCSI controller is in the system, it displays the following Options menu:



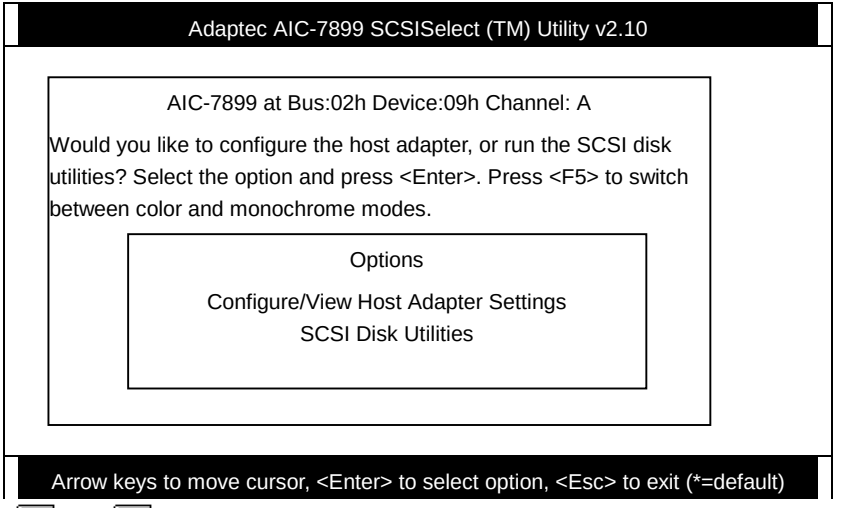
3.2.1 Configuring Channel A

The following screens appear if you select Channel A:

If you choose to configure Channel B, a similar SCSI Utility Screen will appear. The only difference is the I/O Port Address:

A000h for Channel A

A400h for Channel B



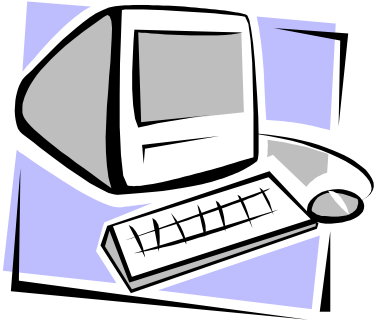
Using ↑ and ↓ and then press ENTER to make selections in the SCSI*Select*™ utility. Press ESC at any time to return to the previous menu.

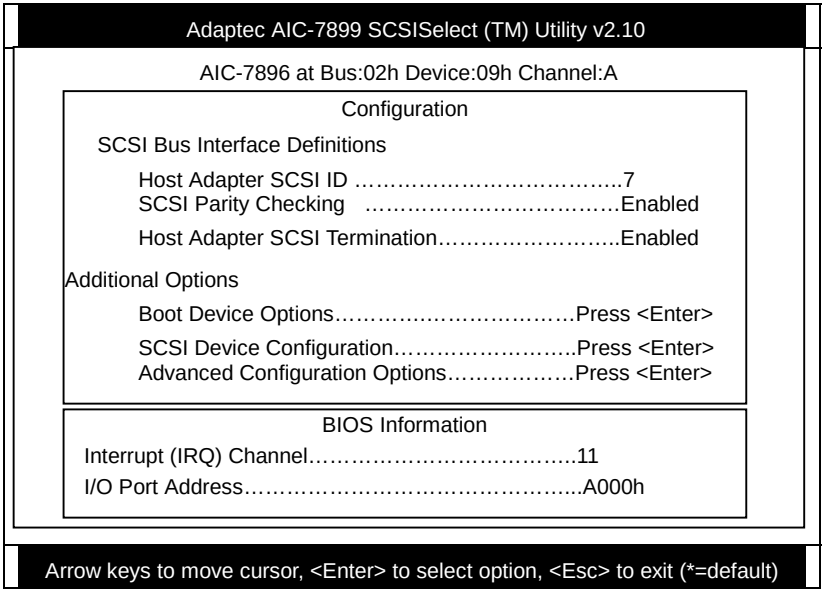
You can press F5 to toggle the display between color and monochrome modes.

This feature may not work with some kinds of monitors.

3.3 Configure/View Host Adapter Settings Menu

The Configure/View Host Adapter Settings menu lists three settings under SCSI Bus Interface Definitions and three additional options.



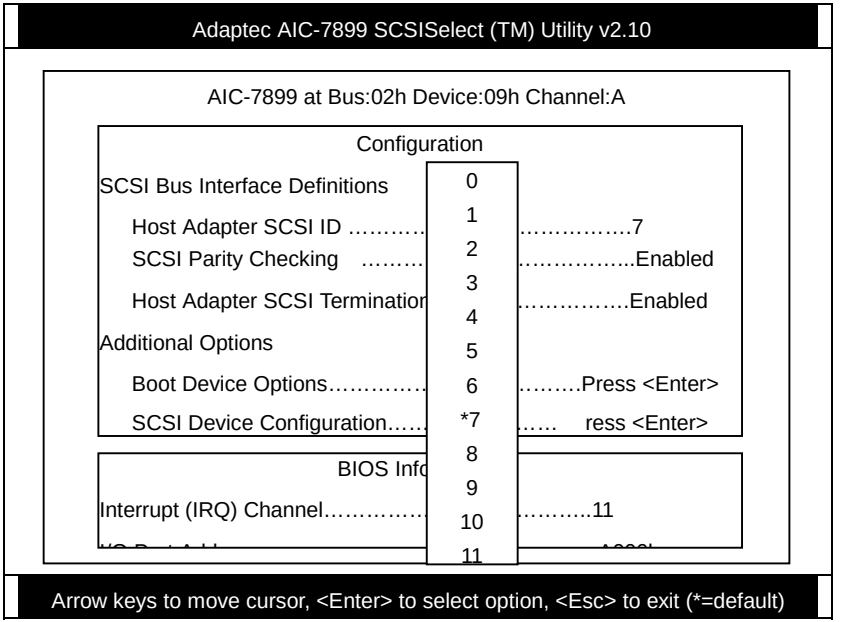


Using ↑ and ↓ to select a parameter. Press ENTER to display a pop-up menu with a list of possible settings for the parameter. Press ESC at any time to return to the previous menu.

SCSI controller default settings are marked with an asterisk (*) throughout the selection submenus.

3.3.1 Host Adapter SCSI ID

This parameter allows you to change the host controller SCSI ID. The following screen shows the available IDs used for the AIC-7899. The default setting is SCSI ID 7, which has the highest priority on the SCSI bus. We recommend that you keep the default setting since most system applications run only in this setting.



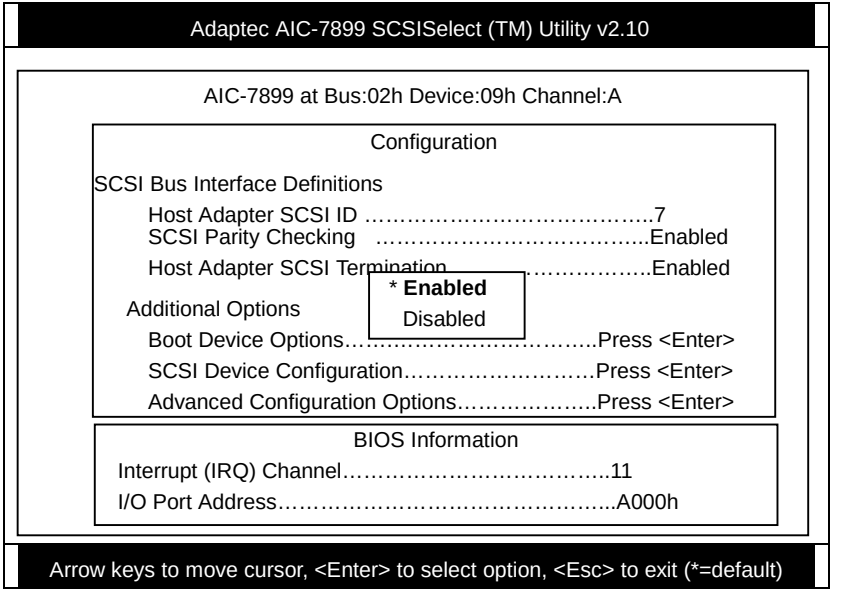
Each device on the SCSI bus, including the SCSI controller, must be set to a unique SCSI ID. The SCSI ID serves two purposes. It uniquely identifies each SCSI device on the bus, and it determines

the device's priority on the bus during the arbitration phase. The arbitration phase determines which device controls the bus when two or more devices request for the use of it.

Using ↑ and ↓ then press ENTER to select the SCSI ID if you need to change it. Press ESC at any time to return to the previous menu.

3.3.2 SCSI Parity Checking

Select this option to enable or disable the SCSI parity checking function on the SCSI controller. The screen below displays the selections. The default setting is "**Enabled**".

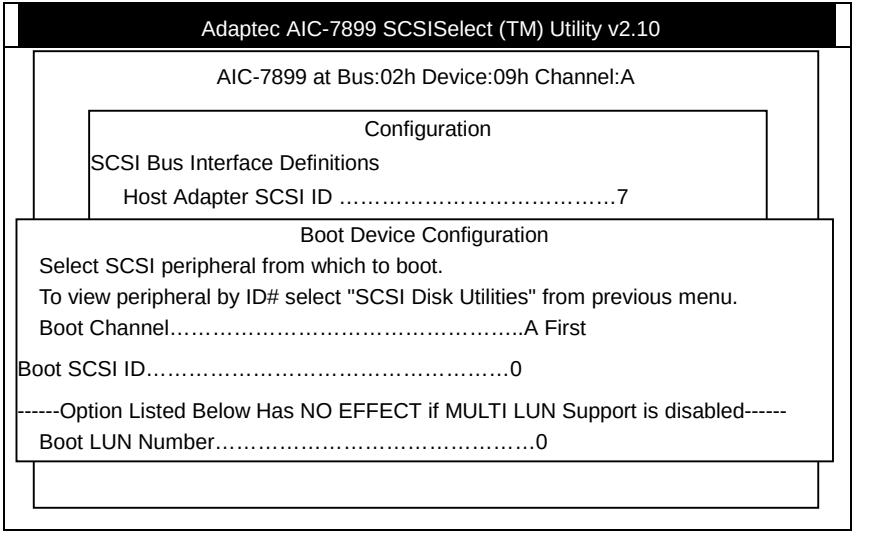


The SCSI controller always checks parity when reading from the SCSI bus to verify the correct transmission of data from the SCSI devices. You should disable the SCSI Parity Checking parameter if any of the installed SCSI devices do not support SCSI parity. Most currently available SCSI devices support this feature.

Using ↑ and ↓ then press ENTER to select options. Press ESC at any time to return to the previous menu.

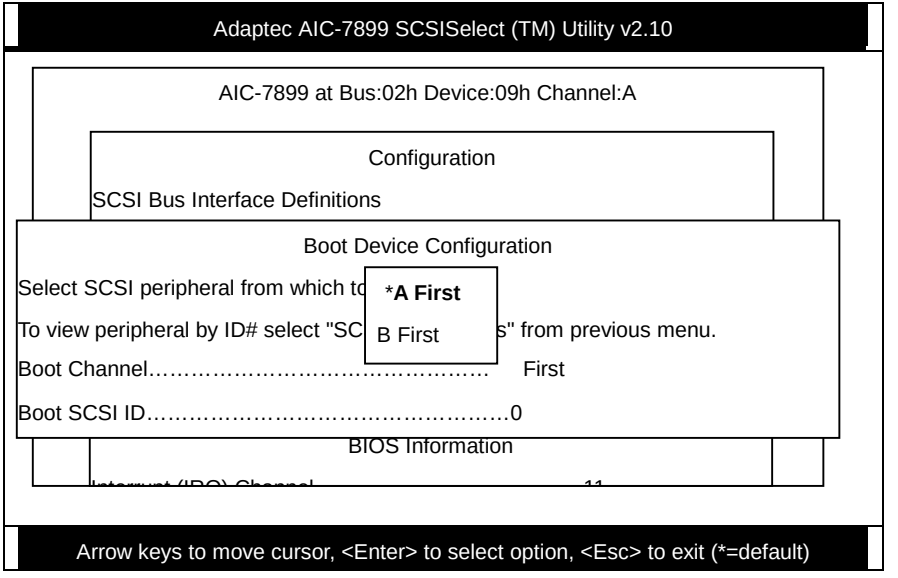
3.3.3 Boot Device Options

This parameter shows the target ID of your boot device. The default setting is 0 (zero). We recommend that you keep the default setting since most system applications run only in this setting. Below is the Boot Device Configuration menu screen.



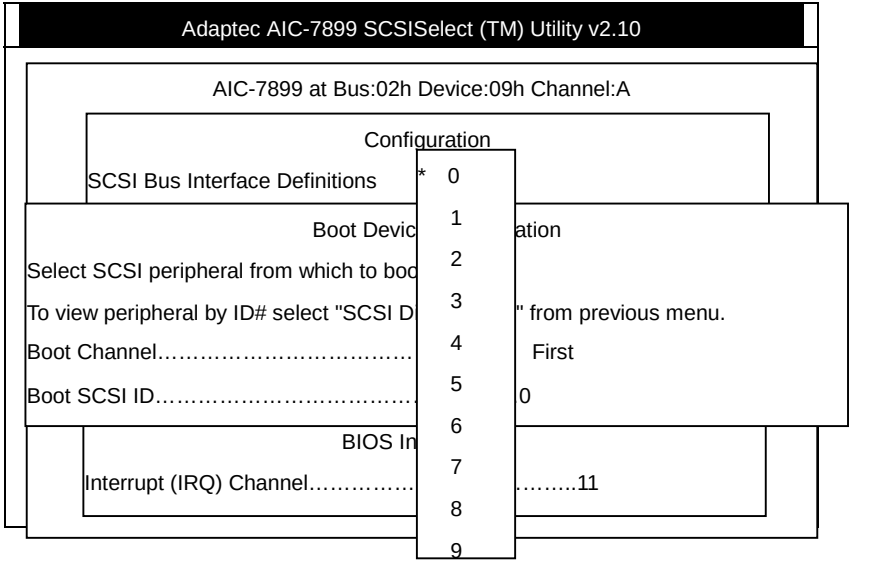
3.3.4 Boot Channel Options

This parameter lets you choosing boot the system from SCSI channel A or B first. The default setting is A (zero). We recommend that you keep the default setting since most system applications run only in this setting. Below is the Boot Device Configuration menu screen.

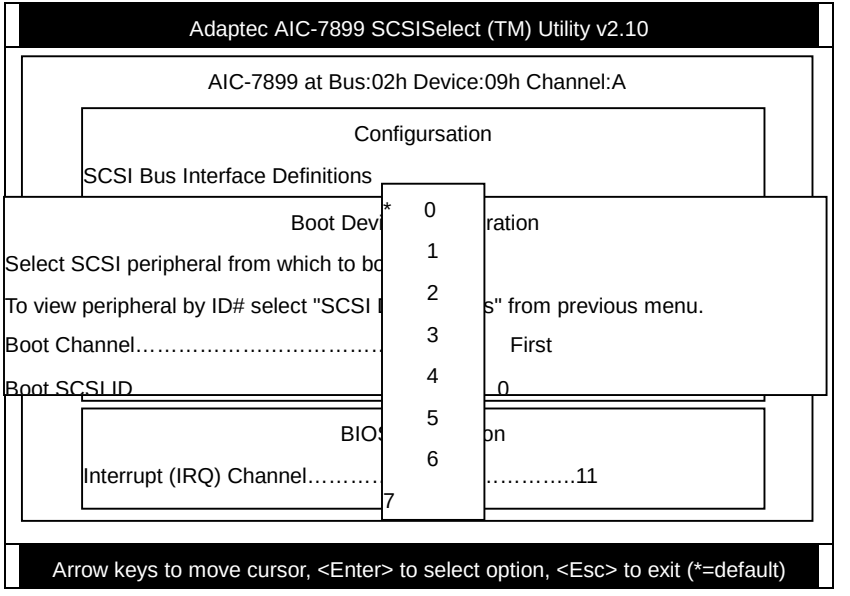


3.3.5 Boot SCSI ID Options

This parameter lets you choosing the SCSI ID of SCSI device to be a boot device. The default setting is 0 (zero). We recommend that you keep the default setting since most system applications run only in this setting. Below is the Boot Device Configuration menu screen.



3.3.6 Boot LUN Number Options



3.3.7 Boot LUN Number

LUN (Logic unit number) can support more devices, like RAID box or RAID card.

3.3.7.1 SCSI Device Configuration

This parameter allows you to configure details of each SCSI device on the SCSI bus. The screen shows a column of information for each SCSI ID, even if some SCSI IDs are not assigned to a device. To configure a specific SCSI device, you need to know which SCSI ID it uses. See the SCSI Disk Utilities later in this section for instructions on how to determine the SCSI ID used by a device.

Adaptec AIC-7899 SCSISelect (TM) Utility v2.10

SCSI Device Configuration

SCSI Device ID	#0	#1	#2	#3	#4	#5	#6	#7
Sync Transfer Rate (MB/Sec).	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0
Initiate Wide Negotiation.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enable Disconnection.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Send Start Unit Command.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enable Write Back Cache.....	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
----------Options Listed Below Have NO EFFECT if the BIOS is Disabled----------								
BIOS Multiple LUN Support.....	No	No	No	No	No	No	No	No
Include in BIOS Scan.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

SCSI Device ID	#8	#9	#10	#11	#12	#13	#14	#15

Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (*=default)

Using ↑ or ↓ to move between options, then press ENTER to display a pop-up menu with a list of values.

Using ↑ or ↓ to select a value, then press ENTER.

3.3.7.2 Sync Transfer Rate

This option determines the maximum synchronous data transfer rate that the SCSI controller can support. The SCSI controller supports rates up to the Fast Wide SCSI maximum of 80.0 MB per second. The default value is 80.0.

In most cases, you can use the maximum value of 80.0. However, if the SCSI controller is not set to negotiate data transfer (i.e., Initiate Sync Negotiation is set to No), the value selected here is the maximum rate that the SCSI controller accepts from the device during negotiation. This is a standard SCSI protocol.

Some older SCSI-1 devices do not support Fast SCSI data transfer rates. This may cause the system to operate erratically or hang if the transfer rate is too high.

3.3.7.3 Initiate Wide Negotiation

This option allows communication between all devices (lower 8-bit or upper 8-bit) on the wide (16-bit) SCSI bus. When set to **Yes**, each device can connect on the bus. When set to **No** (disabled), communication can only occur on the lower eight bits of the 16-bit SCSI bus. The default setting is **Yes**.

3.3.7.4 Enable Disconnection

This option determines whether the SCSI controller allows a SCSI device to disconnect from the SCSI bus (sometimes called Disconnect/Reconnect). Disconnect/Reconnect allows the SCSI controller to perform other operations on the SCSI bus while the SCSI device is temporarily disconnected.

When set to **Yes**, the SCSI device may disconnect from the SCSI bus. The SCSI device, however, may choose not to disconnect, even if permitted by the SCSI controller. When set to **No**, the SCSI device is not allowed to disconnect from the SCSI bus. The default setting is **Yes**.

Keep this item set to **Yes** if two or more SCSI devices are connected to the SCSI controller. This can optimize SCSI bus performance. If only one SCSI device is connected to the SCSI controller, set this item to No to achieve better system performance.

3.3.7.5 Send Start Unit Command

This option determines whether the Start Unit Command (SCSI command 1B) is sent to the SCSI

device (most devices do not require this). Enabling this item reduces the load on the system power supply by allowing the SCSI controller to power up SCSI devices one at a time upon booting. Otherwise, all the devices power up at the same time. Most devices require you to set a jumper before they can respond to this command.

When set to **Yes**, the Start Unit Command is sent to the SCSI device at system boot. When set to **No**, each SCSI device powers up in the normal procedure.

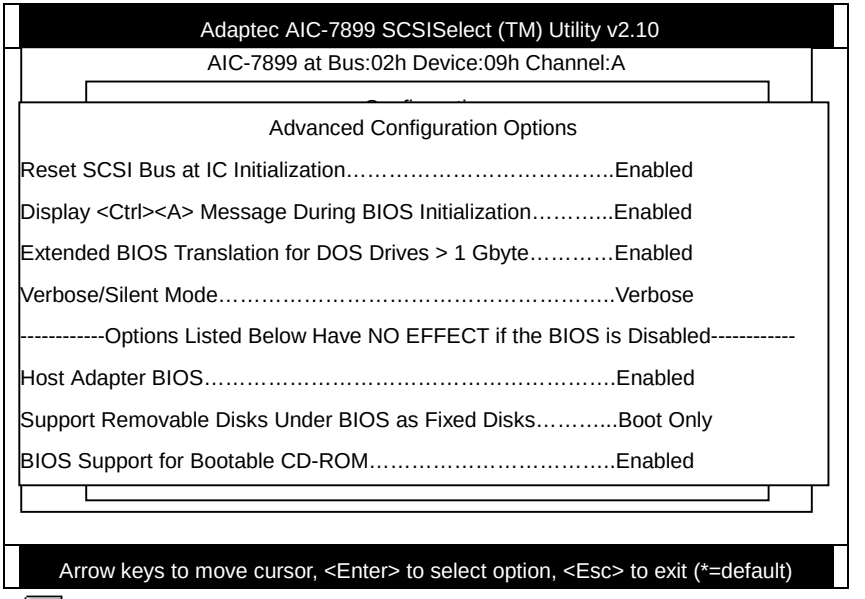
The Send Start Unit Command setting is valid only if the host adapter BIOS is enabled.

If this option is enabled for more than one SCSI device, the Start Unit Command is sent first to the device with the lowest SCSI ID. When this device responds to the SCSI controller, the Start Unit Command is sent to the next highest SCSI ID with a setting of Yes. The process continues until all supported devices respond to the SCSI controller.

If many drives are set to **Yes** for Send Start Unit Command, the boot time varies depending on how long it takes each drive to spin up.

3.4 Advanced Configuration Options

Selecting the Advanced Configuration Options displays a screen as shown below. Do not change the settings of the items under this parameter unless it is absolutely necessary.



Using ↑ or to move between options, then press ENTER to display a pop-up menu with a list of options.

Using ↑ or ↓ to select an option, then press ENTER.

3.4.1 Host Adapter BIOS

This option enables or disables the SCSI controller BIOS. The default setting is **Enabled**.

The SCSI controller BIOS must be enabled if you want the system to boot from a SCSI hard disk drive connected to the SCSI controller. Several SCSISelect™ options cannot be used unless the SCSI controller BIOS is enabled.

3.4.2 Display <Ctrl-A> Message During BIOS Initialization

This option allows entering the SCSISelect™ utility during BIOS initialization. The default setting is **Enabled**.

3.4.3 Extended BIOS Translation for DOS Drives > 1 GByte

This option allows you to enable or disable extended translation for SCSI hard disks with a capacity greater than 1 GB. This is valid only if the SCSI controller BIOS is enabled. The default factory setting is **Enabled**.

When enabled, this option uses the following translation schemes:

- **SCSI hard disks < 1 GB** use a translation scheme of 64 heads, 32 sectors per track
- **SCSI hard disks > 1 GB** use a translation scheme of 255 heads, 63 sectors per track

See the section Disk Drives Over 1 GB" in this chapter, for more information on this option. This option should be left disabled for most operating systems except DOS.

3.4.4 Support Removable Disks Under BIOS as Fixed Disks

This option allows you to control which removable-media drives are supported by the SCSI controller BIOS. This is only valid when the SCSI controller BIOS is enabled. The default setting is **Boot Only**. The following choices are available:

- **Boot Only** - Only the removable-media drive designated as the boot device is treated as a hard disk drive.
- **All Disks** - All removable-media drives supported by the BIOS are treated as hard disk drives.
- **Disabled** - No removable-media drives are treated as hard disk drives. In this case, software drivers are needed because the drives are not controlled by BIOS.

Support for removable-media drives means that the SCSI controller BIOS allows use of a

removable-media drive as if it is a hard disk drive. It does not mean that you can remove the disk media during operation.

If a removable-media SCSI device is controlled by the SCSI controller BIOS, do not remove the media while the drive is powered-on or you may lose data!

3.4.5 BIOS Support for Bootable CD-ROM

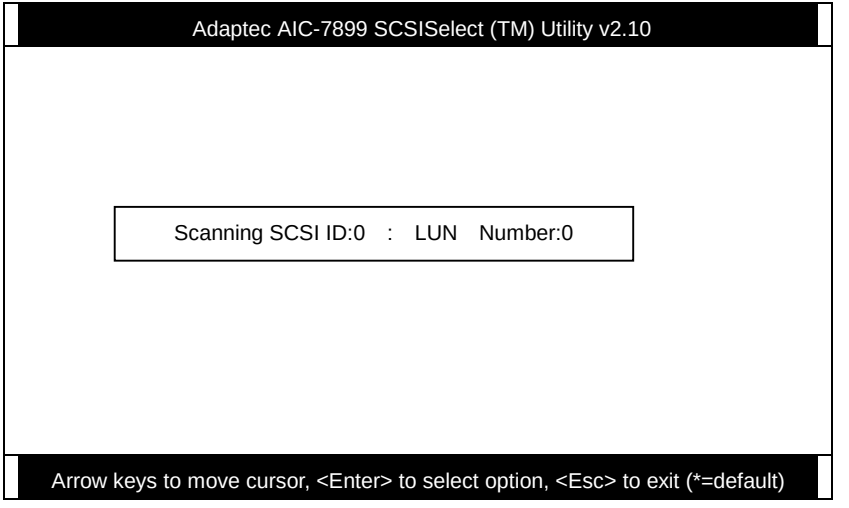
When enabled, this option allows you to use a bootable CD-ROM device to directly load an operating system. The default setting is **Enabled**.

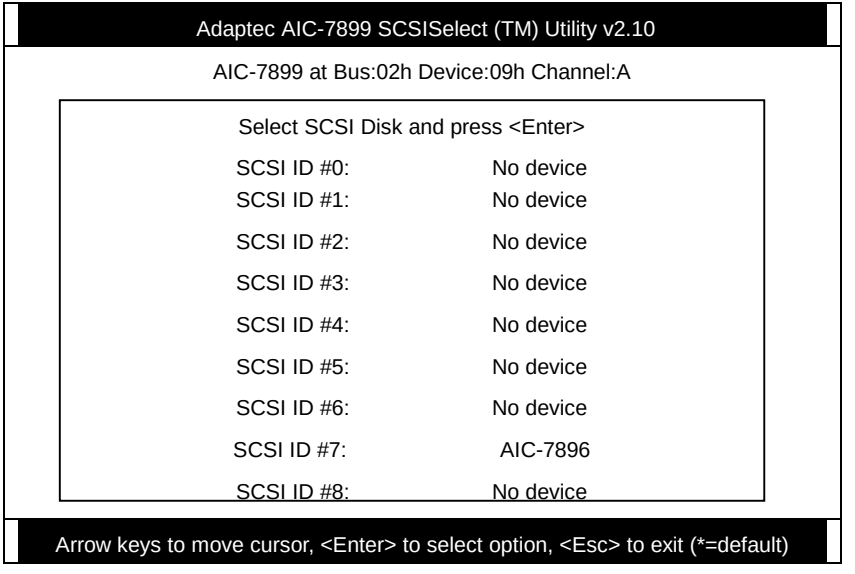
3.4.6 BIOS Support for Int13 Extensions

This option allows access to attached SCSI devices through BIOS Int13 functions. The default setting is **Enabled**.

3.5 SCSI Disk Utilities

When you select SCSI Disk Utilities from the Options menu, the SCSISelect™ Utility scans the SCSI bus and lists all SCSI devices installed on the SCSI bus. The list shows the individual SCSI IDs assigned to each device on the SCSI bus.





Select a disk device to display a small menu window. From this menu, select **Format Disk** or **Verify Media**.

Using ↑ or ↓ to move between options, then press ENTER to display a pop-up menu with a list of values.

Using ↑ or ↓ to select a value, then press ENTER.

3.5.1 Format Disk

The Format Disk utility performs a low-level format on disk devices.

Most SCSI disk devices are preformatted and do not need to be formatted again. The Adaptec Format Disk utility is compatible with the vast majority of SCSI disk drives. Run it on hard disk drives or removable-media drives that were previously used with a non-Adaptec SCSI controller.

A low-level format destroys all data on the drive. Be sure to back up your data before performing this operation. You cannot abort a low-level format once it is started.

3.5.2 Verify Media

The Verify Media utility scans the selected device's media for defects. If the utility finds bad blocks, it prompts you to reassign them. If you select **Yes**, those blocks will no longer be used.

You can press ESC at any time to abort the Verify Disk Media utility.

3.6 Disk Drives Over 1 GByte

3.6.1 Extended Translation

Adaptec SCSI controllers have always supported the full range of disk drive capacities under all major operating systems. As disk drives have recently grown beyond 1 GB in formatted capacity, they have run up against the DOS 1024-cylinder limit.

To continue its support for all SCSI disk drive capacities under DOS, Adaptec has included an extended translation scheme for the AIC-7896 SCSI controllers. This feature supports disk drives of up to 8 GB capacity under DOS. The section Extended BIOS Translation for DOS Drives > 1 GB explains how to change the setting of this option. Most operating systems leave this option disabled.

3.6.2 DOS 1 GByte Limit

All current versions of DOS are limited to 1024 cylinders per drive. The standard translation scheme for SCSI host controllers, using 64 heads and 32 sectors, gives a maximum capacity of 1 GB.

To eliminate the 1-GB limit, Adaptec's extended translation feature uses 255 heads and 63 sectors, extending the disk drive capacity limit under DOS to 8 GB.

If you have already partitioned a large hard disk drive with one translation method, conversion to another method erases the data on the drive. Be sure to back up your disk drive prior to any change in the translation method.

3.7 When to Use the Extended Translation

3.7.1 with DOS 5.0 and above

NetWare 386 (version 3.0 and above) and some versions of UNIX that do not share the 1024 cylinder limit of DOS do not require extended translation to support large disk drives and should not be enabled.

3.7.2 drives with mixed partitions

Use standard translation (not extended translation) on drives formatted with two or more partitions for different operating systems. Partitions for UNIX and NetWare can be larger than 1 GB when using standard translation.

3.7.3 Using FDISK

To install a new disk, or to re-partition an existing disk, use the FDISK DOS utility as you normally would. The cylinder size increases to 8 MB when you enable extended translation. The size of the partition you request must therefore be a multiple of 8 MB. If you request a partition size that is not a multiple of 8 MB, FDISK rounds up to the nearest whole multiple of 8 MB.

Glossary

AC97

Basically, AC97 specification separates sound/modem circuit to two parts, digital processor and a CODEC for analog I/O they are linked by AC97 link bus. Since digital processor can be put into motherboard main chipset, the cost of sound/modem onboard solution can be reduced.

ACPI (Advanced Configuration & Power Interface)

ACPI is the power management specification of PC97 (1997). It intends to save more power by taking full control of power management to operating system and bypass BIOS. The chipset or super I/O chip needs to provide standard register interface to operating system (such as Windows 98). This is a bit similar as the PnP register interface. ACPI defines ATX momentary soft power switch to control the power state transition.

AGP (Accelerated Graphic Port)

AGP is a bus interface targeted for high-performance 3D graphic. AGP supports only memory read/write operation and single-master single-slave one-to-one only. AGP uses both rising and falling edge of the 66MHz clock, for 2X AGP, the data transfer rate is 66MHz x 4byte x 2 = 528MB/s. AGP is now moving to 4X mode, 66MHz x 4byte x 4 = 1056MB/s. AOpen is the first company to support 4X AGP motherboards by both AX6C (Intel 820) and MX64/AX64 (VIA 694x), started from Oct 1999.

AMR (Audio/Modem Riser)

The CODEC circuit of AC97 sound/modem solution can be put on motherboard or put on a riser card (AMR card) that connects to motherboard through AMR connector.

AOpen Bonus Pack CD

A disc bundled with AOpen motherboard product, there are motherboard drivers, Acrobat Reader for PDF online manual and other useful utilities.

APM

Unlike ACPI, BIOS controls most APM power management functions. AOpen Suspend to Hard Drive is a good example of APM power management.

ATA/66

ATA/66 uses both rising edge and falling edge but doubles UDMA/33 transfer rate. The data transfer rate is 4 times of the PIO mode 4 or DMA mode 2, 16.6MB/s x4 = 66MB/s. To use ATA/66, you need special ATA/66 IDE cable.

ATA/100

ATA/100 is a new IDE specification under developing. ATA/100 uses both rising edge and falling edge as ATA/66 but clock cycle time is reduced to 40ns. The data transfer rate is (1/40ns) x 2 bytes x 2 = 100MB/s. To use ATA/100, you need special 80-wire IDE cable, the same as ATA/66.

BIOS (Basic Input/Output System)

BIOS is a set of assembly routine/program that reside in EPROM or Flash ROM. BIOS controls Input/output devices and other hardware devices of motherboard. In general, to provide hardware independent portability, operation system and drivers is required to access BIOS without directly access hardware devices.

Bus Master IDE (DMA mode)

The traditional PIO (Programmable I/O) IDE requires the CPU to involve in all the activities of the IDE access including waiting for the mechanical events. To reduce the workload of the CPU, the bus master IDE device transfers data from/to memory without interrupting CPU, and releases CPU to operate concurrently while data is transferring between memory and IDE device. You need the bus master IDE driver and the bus master IDE HDD to support bus master IDE mode.

CODEC (Coding and Decoding)

Normally, CODEC means a circuit that can do digital to analog conversion and also the analog to digital conversion. It is part of AC97 sound/modem solution.

DIMM (Dual In Line Memory Module)

DIMM socket has total 168-pin and supports 64-bit data. It can be single or double side, the golden finger signals on each side of PCB are different, that is why it was called Dual In Line. Almost all DIMMs are made by SDRAM, which operate at 3.3V. Note that some old DIMMs are made by FPM/EDO and only operate at 5V. Do not confuse them with SDRAM DIMM.

ECC (Error Checking and Correction)

The ECC mode needs 8 ECC bits for 64-bit data. Each time memory is accessed, ECC bits are updated and checked by a special algorithm. The ECC algorithm has the ability to detect double-bit error and automatically correct single-bit error while parity mode can only detect single-bit error.

EDO (Extended Data Output) Memory

The EDO DRAM technology is actually very similar to FPM (Fast Page Mode). Unlike traditional FPM that tri-states the memory output data to start the pre-charge activity, EDO DRAM holds the memory data valid until the next memory access cycle, that is similar to pipeline effect and reduces one clock state.

EEPROM (Electronic Erasable Programmable ROM)

Also known as E^2PROM. Both EEPROM and Flash ROM can be re-programmed by electronic signals, but the interface technology is different. Size of EEPROM is much smaller than flash ROM, AOpen motherboard uses EEPROM for jumper-less and battery-less design.

EPROM (Erasable Programmable ROM)

Traditional motherboard stores BIOS code in EPROM. EPROM can only be erased by ultra-violet (UV) light. If BIOS has to be upgraded, you need to remove EPROM from motherboard, clear by UV light, re-program, and then insert back.

EV6 Bus

EV6 Bus in the technology of Alpha processor from Digital Equipment Corporation. EV6 bus uses both rising and falling clock edge to transfer data, similar as DDR SDRAM or ATA/66 IDE bus.
EV6 Bus Speed = CPU external bus clock x 2.
For example, 200 MHz EV6 bus is actually using 100 MHz external bus clock, but the equivalent speed is 200 MHz.

FCC DoC (Declaration of Conformity)

The DoC is component certification standard of FCC EMI regulations. This standard allows DIY component (such as motherboard) to apply DoC label separately without a shielding of housing.

FC-PGA

FC means Flip Chip, FC-PGA is a new package of Intel for Pentium III CPU. It can plug into SKT370 socket, but require motherboard to add some signals on socket 370. That is, the motherboard needs to be redesigned. Intel is going to ship FC-PGA 370 CPU and phase out slot1 CPU.

Flash ROM

Flash ROM can be re-programmed by electronic signals. It is easier for BIOS to upgrade by a flash utility, but it is also easier to be infected by virus. Because of increase of new functions, BIOS size is increased from 64KB to 256KB (2M bit). AOpen AX5T is the first board to implement 256KB (2Mbit) Flash ROM. Now flash ROM size is moving to 4M bit on AX6C (Intel 820) and MX3W (Intel 810) motherboard.

FSB (Front Side Bus) Clock

FSB Clock means CPU external bus clock.
CPU internal clock = CPU FSB Clock x CPU Clock Ratio

I^2C Bus

See SMBus.

P1394

P1394 (IEEE 1394) is a standard of high-speed serial peripheral bus. Unlike low or medium speed USB, P1394 supports 50 to 1000Mbit/s and can be used for video camera, disk and LAN.

Parity Bit

The parity mode uses 1 parity bit for each byte, normally it is even parity mode, that is, each time the memory data is updated, parity bit will be adjusted to have even count "1" for each byte. When next time, if memory is read with odd number of "1", the parity error is occurred and this is called single bit error detection.

PBSRAM (Pipelined Burst SRAM)

For Socket 7 CPU, one burst data read requires four QWord (Quad-word, 4x16 = 64 bits). PBSRAM only needs one address decoding time and automatically sends the remaining QWords to CPU according to a predefined sequence. Normally, it is 3-1-1-1, total 6 clocks, which is faster than asynchronous SRAM. PBSRAM is often used on L2 (level 2) cache of Socket 7 CPU. Slot 1 and Socket 370 CPU do not need PBSRAM.

PC100 DIMM

SDRAM DIMM that supports 100MHz CPU FSB bus clock.

PC133 DIMM

SDRAM DIMM that supports 133MHz CPU FSB bus clock.

PDF Format

A file format for electronic document, PDF format is independent from platform, you can read PDF file under Windows, Unix, Linux, Mac … with different PDF reader. You can also read PDF file by web browser such as IE and Netscape, note that you need to install PDF plug-in first (Included in Acrobat Reader).

PnP (Plug and Play)

The PnP specification suggests a standard register interface for both BIOS and operating system (such as Windows 95). These registers are used by BIOS and operating system to configure system resource and prevent any conflicts. PnP BIOS or operating system will automatically allocate the IRQ/DMA/Memory. Currently, almost all the PCI cards and most ISA cards are already PnP compliant.

POST (Power-On Self Test)

The BIOS self-test procedure after power-on, sometimes, it is the first or the second screen shown on your monitor during system boot.

RDRAM (Rambus DRAM)

Rambus is a memory technology that uses large burst mode data transfer. Theoretically, the data transfer should be high than SDRAM. RDRAM is cascaded in channel operation. For Intel 820, only one RDRAM channel is supported, 16-bit data per channel, and this channel may have maximum 32 RDRAM devices, no matter how many RIMM sockets.

RIMM

184-pin memory module that supports RDRAM memory technology. A RIMM memory module may contain up to maximum of 16 RDRAM devices.

SDRAM (Synchronous DRAM)

SDRAM is one of the DRAM technologies that allows DRAM to use the same clock as the CPU host bus (EDO and FPM are asynchronous and do not have clock signal). It is similar as PBSRAM to use burst mode transfer. SDRAM comes in 64-bit 168-pin DIMM and operates at 3.3V. AOpen is the first company to support dual-SDRAM DIMMs onboard (AP5V), from Q1 1996

SIMM (Single In Line Memory Module)

SIMM socket is only 72-pin, and is only single side. The golden finger signals on each side of PCB are identical. That is why it was called Single In Line. SIMM is made by FPM or EDO DRAM and supports 32-bit data. SIMM had been phased out on current motherboard design.

SMBus (System Management Bus)

SMBus is also called I2C bus. It is a two-wire bus developed for component communication (especially for semiconductor IC). For example, set clock of clock generator for jumper-less motherboard. The data transfer rate of SMBus is only 100Kbit/s, it allows one host to communicate with CPU and many masters and slaves to send/receive message.

SPD (Serial Presence Detect)

SPD is a small ROM or EEPROM device resided on the DIMM or RIMM. SPD stores memory module information such as DRAM timing and chip parameters. SPD can be used by BIOS to decide best timing for this DIMM or RIMM.

Ultra DMA/33

Unlike traditional PIO/DMA mode, which only uses the rising edge of IDE command signal to transfer data. UDMA/33 uses both rising edge and falling edge, the data transfer rate is double of the PIO mode 4 or DMA mode 2.

16.6MB/s x2 = 33MB/s

USB (Universal Serial Bus)

USB is a 4-pin serial peripheral bus that is capable of cascading low/medium speed peripherals (less than 10Mbit/s) such as keyboard, mouse, joystick, scanner, printer and modem. With USB, the traditional complex cables from back panel of your PC can be eliminated.

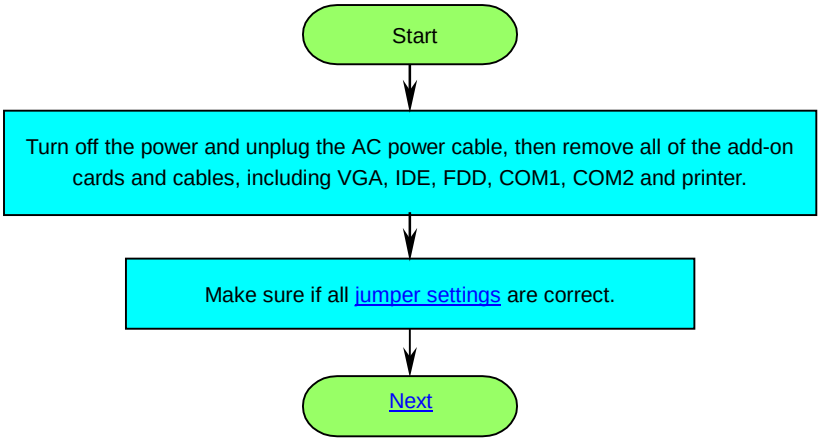
VCM (Virtual Channel Memory)

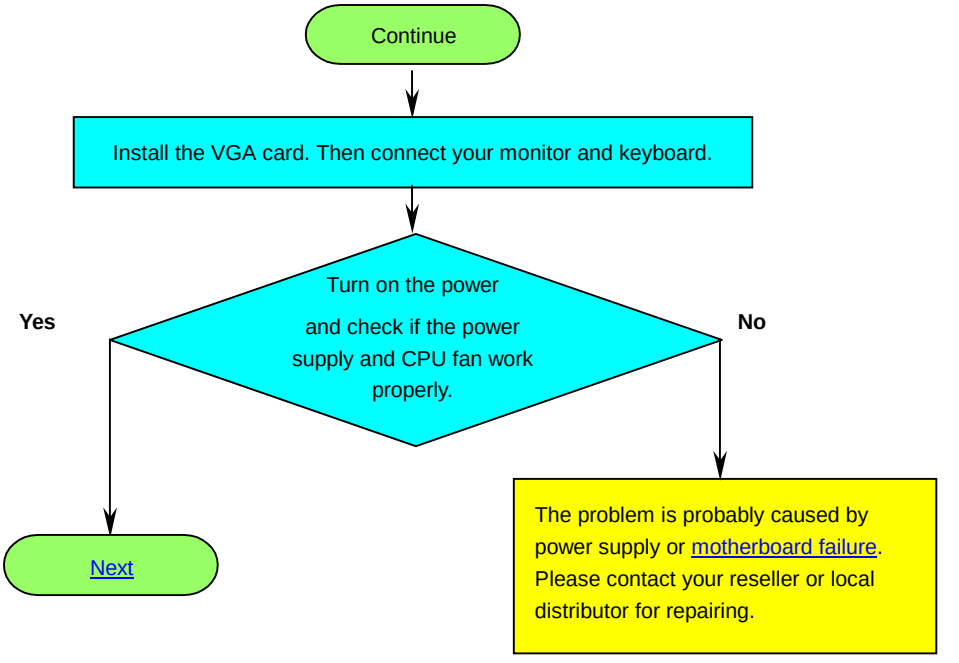
NEC's Virtual Channel Memory (VCM) is a new DRAM core architecture that dramatically improves the memory system's ability to service multimedia requirements. VCM increases memory bus efficiency and performance of any DRAM technology by providing a set of fast static registers between the memory core and I/O pins. Using VCM technology results in reduced data access latency and reduced power consumption.

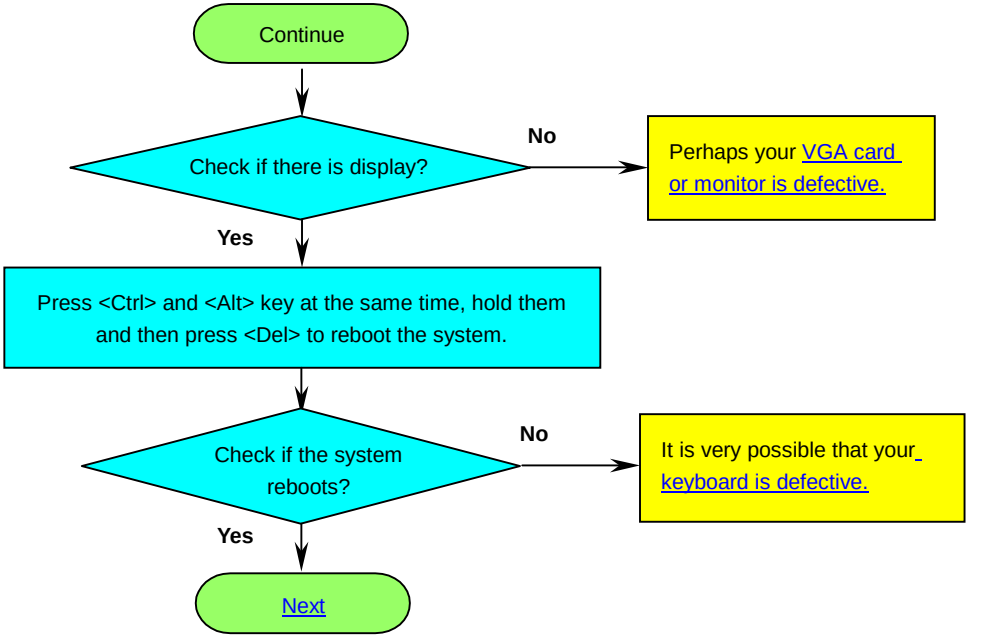
ZIP file

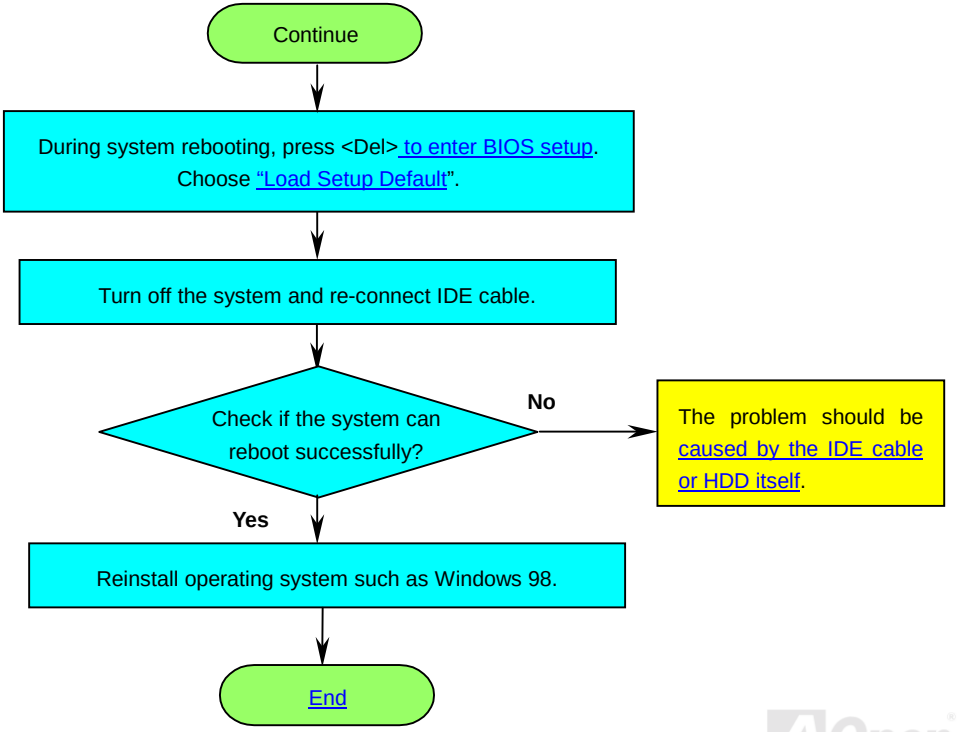
A compressed file format to reduce file size. To unzip file, run shareware PKUNZIP (http://www.pkware.com/) for DOS and other operating system or WINZIP (http://www.winzip.com/) for windows environment.

Troubleshooting




Continue
Install the VGA card. Then connect your monitor and keyboard.
Turn on the power and check if the power supply and CPU fan work properly.
Yes
No
Next
The problem is probably caused by power supply or motherboard failure. Please contact your reseller or local distributor for repairing.


Continue
Check if there is display?
No
Perhaps your VGA card or monitor is defective.
Yes
Press <Ctrl> and <Alt> key at the same time, hold them and then press <Del> to reboot the system.
Check if the system reboots?
No
It is very possible that your keyboard is defective.
Yes
Next


Continue
During system rebooting, press <Del> to enter BIOS setup.
Choose "Load Setup Default".
Turn off the system and re-connect IDE cable.
Check if the system can reboot successfully?
No
The problem should be caused by the IDE cable or HDD itself.
Yes
Reinstall operating system such as Windows 98.
End

Product Registration

Thank you for choosing AOpen product. AOpen encourages you to spend few minutes in completing the following product registration. To register your product will ensure the high quality of services from AOpen. After the registration, you will:

- Have opportunities to play online slot machine and win a prize from AOpen by accumulating your bonuses for later prize exchange.
- Be upgraded to gold membership of Club AOpen program.
- Receive email notification about product safety alerts. Its purpose is to alert consumers quickly and conveniently when products contain technical issues.
- Receive email notification about latest product's announcements.
- Be able to personalize your AOpen web pages.
- Receive e-mail notification about latest BIOS/Driver/Software release information.
- Have opportunities to participate special product promotional programs.
- Enjoy higher service priority to receive technical assistance provided by AOpen specialists worldwide.

- Be able to join the discussions of web-based news groups.

AOpen makes sure that the information you provide is encrypted, so that it cannot be read or intercepted by other people or companies. Further, AOpen will not disclose any of information you submitted under any conditions. Please consult our online privacy policy for further information on our company policy.

Note: *If registering products purchased from different dealers/retails and/or purchased on different dates, please submit a separate form for each product.*

Technical Support

Dear Customer,

Thanks for choosing AOpen products. To provide the best and fastest service to our customer is our first priority. However, we receive numerous emails and phone-calls worldwide everyday, it is very hard for us to serve everyone on time. We recommend you follow the procedures below and seek help before contact us. With your help, we can then continue to provide the best quality service to more customers.

Thanks very much for your understanding!

AOpen Technical Supporting Team

1

Online Manual: Please check the manual carefully and make sure the jumper settings and installation procedure are correct.
http://www.aopen.com.tw/tech/download/manual/default.htm

2

Test Report: We recommend choosing board/card/device from the compatibility test reports for assembling your PC.

http://www.aopen.com.tw/tech/report/default.htm

3

FAQ: The latest FAQ (Frequently Asked Questions) may contain a solution to your problem.
http://www.aopen.com.tw/tech/faq/default.htm

4

Download Software: Check out this table to get the latest updated BIOS/utility and drivers.
http://www.aopen.com.tw/tech/download/default.htm

5

News Group: Our support engineer or professional users on the news group probably had answered your problem.
http://www.aopen.com.tw/tech/newsgrp/default.htm

6

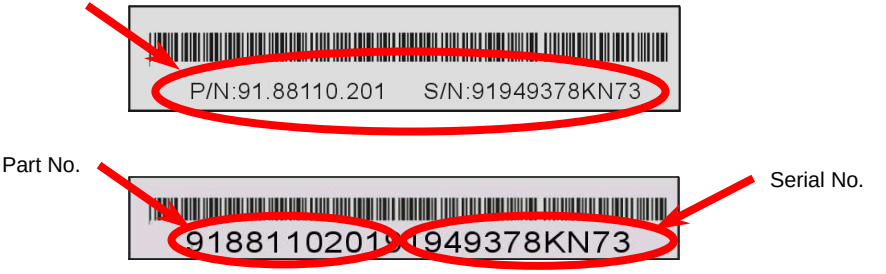
Contact Distributors/Resellers: We sell our products through resellers and integrators. They should know your system configuration very well and should be able to solve your problem more efficiently than us. After all, their attitude of service is an important reference for you if next time you want to buy something else from them.

7

Contact Us: Please prepare detail system configuration and error symptom before contacting us. The **part number**, **serial number** and **BIOS version** are also very helpful.

Part Number and Serial Number

The Part Number and Serial number are printed on bar code label. You can find this bar code label on the outside packing, on ISA/CPU slot or on component side of PCB. For example:



P/N: 91.88110.201 is part number, **S/N: 91949378KN73** is serial number.

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